HORIZON

WINTER 1971

HORIZON

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WINTER, 1971 • VOLUME XIII, NUMBER 1

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Neglected Mysteries of Childhood

"The childhood shows the man, as the morning shows the day."

"Just as the twig is bent, the tree's inclined."

"The child is father of the man."

Thus—long before Freud—wrote Milton, Pope, and Wordsworth. That all of us are enormously affected by our early years is no longer news—if, indeed, it ever was. But memory plays odd tricks; as we "put away childish things," we may lovingly preserve sheaves of mental snapshots from our childhood, yet completely forget what it was to be a child. And the penalty we pay for failing to perceive the world through our children's eyes is a heavy one: the generation gap.

That gap not only seems to be growing wider but it is announcing itself earlier: college militants battling the "system" have lately been reinforced by high-school irregulars—and even by a few volunteers from the preteen ranks. This novel situation has been a boon to cartoonists, but to harassed parents and teachers it is no joke.

Surely, though, restless youth has always been impatient with settled age. Isn't the generation gap inherent in the nature of things? Isn't it an old story?

Not at all, replies J. H. Plumb, in a comprehensive history of childhood that begins on page 4 of this issue of HORIZON. Dr. Plumb contends that our notion of children as a special group, excluded, quite properly, from adult pursuits and concerns, is a relatively new one, dating from no more than four centuries ago. Before then, boys and girls shared beds, meals, clothes, chores, and diversions with their elders. The first to be exiled to a separate existence were the sons and daughters of the well-to-do; thereafter, the new pattern of upbringing was gradually extended to middle-class households and finally to those of the working class.

Until our own time, moreover, this attitude has

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been almost entirely confined to the West. The majority of mankind has treated its children simply as younger members of society, not equal perhaps, but not separate either. As Edward Schafer points out in his description of the enchanting Chinese twelfth-century painting on pages 20 and 21, this was true even of upper-class youngsters during the time of the highly sophisticated Sung dynasty.

But some things have not changed, and apparently never will. From the beginning of human time children have contrived to form a subculture of their own, and one that seems to become more mysterious to adults the farther away they get from it. Thus the sprightly figures in Pieter Bruegel's famous painting *Children's Games* (pages 16 and 17) are, as Peter and Iona Opie inform us, engaged in activities that were well known in ancient Athens—and in modern Paris, Sydney, and New York. Similarly, Jean Piaget, the celebrated Swiss psychologist whose profile begins on page 32, has discovered in his lifelong investigations into how young minds learn and grow that children follow the same patterns of behavior no matter where they are brought up. "The world-wide fraternity of children is the greatest of savage tribes," the anthropologist Douglas Newton has observed, "and the only one which shows no sign of dying out."

Why, then, are so many of our own youngsters in a state of near-revolt while children elsewhere in the world are not? Is it because of their permissive, Spock-inspired upbringing? No, says Dr. Plumb, they are protesting instead against being forced into "a repressive and artificial world—a prison, indeed . . . In essence, youth is rebelling against four centuries of repression and exploitation."

Whether or not he accepts this thesis, the reader may receive a fresh insight or two into the nature of that mysterious state through which he once passed himself. He might even—who knows?—pick up some ideas on how to bridge the generation gap from this side.

—O.DE K., JR.

Children: Past and Present

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COVER: This impulsive young man and pleasantly surprised young lady embrace in a detail of *The Triumph of Venus*, a panel done by Francesco Cossa as one of a series of frescoes in the Schifanoia Palace in Ferrara. Painted by several artists in the fifteenth century, twelve frescoes—one for each month of the year—were executed for the duke Borso d'Este; of these, portions of seven remain. Although the frescoes illustrated some astrological portents for the various months, they were also intended to show posterity the portrait of a liberal and fair ruler and the daily life at his court—the environment of the Renaissance humanists. More of Cossa's frescoes, including this one, for April, appear on pages 91 to 94. They accompany an essay by Vincent Cronin on the humanists, who defined what still seems to us an ideal sort of life.

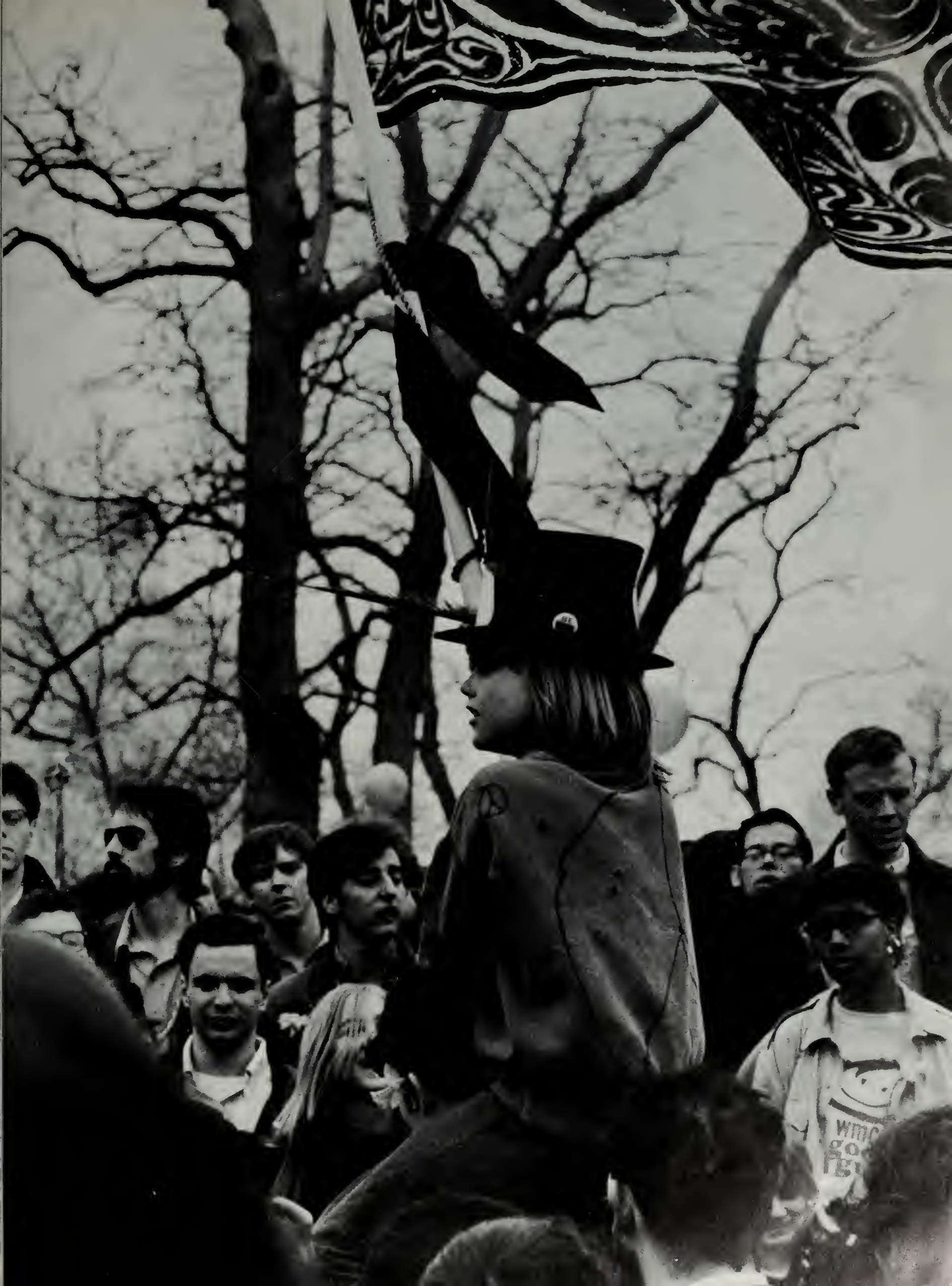
The Great Change In Children

NATIONAL GALLERY, LONDON; OPPOSITE: BURT GLINN © 1967 MAGNUM PHOTOS

Peering around a post, the fifteenth-century girl above appears in Carlo Crivelli's painting The Annunciation. *The top-hatted moppet opposite rides the wave of youthful rebellion at an antiwar demonstration in New York.*

They used to be part of adult life.
But during the past four centuries we have gradually
pushed them into a world of their own.
No wonder they have made that world a citadel of rebellion

By J. H. PLUMB



METROPOLITAN MUSEUM OF ART, GIFT OF J. PIERPONT MORGAN, 1917

Little People

Until comparatively recent times, children were viewed as small-scale adults and were dressed accordingly: the future King James I of England, at left with his mother Mary, Queen of Scots, wears the cap and ruff worn by babies and old men alike. Opposite, the fetching girls at left are, in fact, a boy (right) and a girl. By the eighteenth century well-to-do children had become "innocents" and were set apart from grownups, but the offspring of humbler families, like the two French girls at far right, were to remain "little people" for generations longer, even into our own time, sharing games, beds, chores, and dress styles with their elders.

Within the family circle the affections binding parents and children seem so natural that one assumes these relationships are a part of our humanity. Certainly some aspects are. Mothers protect, look after, and feed children. One can see the biological urge of motherhood at work whenever one glances at animals or even birds. But once one moves away from this biological fact, one moves into a world of change, of varying social attitudes of remarkable diversity. And certainly our own attitudes toward children not only differ widely from our fathers' and grandfathers' but differ immensely once we push back into the early nineteenth century and beyond. The world that we think proper to children—fairy stories, games, toys, special books for learning, even the idea of childhood itself—is a European invention of the past four hundred years. The very words we use for young males—boy, *garçon, Knabe*—were until the seventeenth century used indiscriminately to mean a male in a dependent position and could refer to men of thirty, forty, or fifty. There was no special word for a young male between the ages of seven and sixteen; the word "child" expressed kinship, not an age state.

About the ancient world's attitude toward children we know next to nothing, though we are somewhat better informed about the training and education of youths in Greece, and especially in Sparta. For classical China the situation is similar: deep reverence for parents, particularly the father, was insisted upon, but we know very little of what was thought of childhood as a state. The common pattern of attitudes toward children among most primitive peoples, and there are discernible relics of this pattern in most advanced societies, is this: they are regarded as infants until seven years of age; little differentiation is made between the sexes, indeed, they are often dressed alike; at seven infancy goes and the boys begin to follow men's activities—herding cattle, hunting for food, working on the farm. Usually they are not men in two important aspects, the making of love and the making of war.

The entry into full manhood is customarily marked by intricate ritual, almost always painful. Spartan boys were viciously flogged, Arabian boys were circumcised without anesthetic. Nuer boys had their foreheads incised to the bone. The boys undergoing this operation were regarded as being of the same tribal age. They remained "classmates" for the rest of their lives, although their actual ages might vary by as much as four or five years. Most of them, however, would be unaware of their own precise age—indeed, this is true of the majority of men and women in medieval Europe. Often their ages would be associated with a village event, sometimes fairly decisively, but often in the vaguest way: a child of "about seven" could be any age from five to nine. Precision of age is a remarkably modern phenomenon; most societies until modern times simply grouped the young into blocks—infants, noninitiate boys or girls, and the like—in which age was irrelevant.

Again, it is very rare to find children depicted as children before the beginnings of the modern world, at the time of the Renaissance. In Chinese paintings, as in medieval manuscripts, they are usually shown as small adults, wearing the clothes, often having the expressions, of men and women. The Greeks paid little attention to childhood as a special state, and there are no Grecian statues of children. It is true that in the late Roman Empire there is the hint of a change. There are a few remarkable heads of young boys, ten or twelve years of age, very lifelike and obviously individual portraits; most of these seem to come from funerary monuments. They dis-

BOYMANS MUSEUM, ROTTERDAM; LEFT: MUSEE DE VERSAILLES — ARCHIVES PHOTOGRAPHIQUES

play a quite extraordinary sense of age, of the young and growing child, which was not to be found again in Western art until Renaissance times. And there was Cupid, who fluttered in and out of frescoes, who as Eros was sculptured again and again during Hellenistic times. He is the ancestor of the naked *putti* that flit through the pictures of so many European artists from the fifteenth to the nineteenth century, mischievous, impudent, and sentimental. But Eros was a stylized symbol, not a child. Similarly, toward the close of the Middle Ages, angels appear in illustrated manuscripts, singing and playing musical instruments, and they are quite obviously neither infants nor adults, but children. Yet they, too, like Cupid, fulfill a special function. And they do not lead to the portrayal of actual children. One has only to look at the church monuments of Elizabethan England to see how distant the concept was of childhood as a separate state. There, lined up behind the father are three or four little men, all dressed like himself in the formal clothes of the age, and behind his wife kneels a group of little girls wearing the habits of women. Only infants are clothed differently. They are shown either tightly bound in their swaddling clothes or dressed in the long robes worn by both girls and boys alike until they were "about seven."

Fortunately, enough records survive for us to be able to state with confidence that pictorial representation is but a reflection of a social attitude. And we can trace the slow evolution of our modern concepts of childhood over the past four hundred years. The journey, though slow, was immense—the development of a separate world of childhood. This seems so natural to us that it is difficult to conceive of any other.

First, we must remember that infants died more often than they lived. "All mine die," said Montaigne casually, as a gardener might speak of his cabbages. And until they had reached the end of infancy, between the ages of five and seven, they scarcely counted. A character in Molière, when talking of children, says, "I don't count the little one." Men and women of the sixteenth and seventeenth centuries would not have regarded the exposure of children by the Spartans, Romans, and Chinese as callous. Indeed, it is likely that the poor of Renaissance Europe treated unwanted infants with a similar brutality. Life was too harsh to bother overmuch about an infant who probably would not survive anyway. At that time the attitude was much nearer to the instinct of an animal—immense concern while the infant lived to feed it and protect it, indifference after it was dead, and death was expected.

A new sensitivity toward infant mortality can be discerned near the end of the sixteenth century, when dead children began to be represented on their parents' tombs. The fact that they were dead, not living, children is made grimly clear. They either have skulls in their hands, or kneel upon one, or have one hanging above their head, and even tiny infants are depicted, still in their swaddling clothes, which indicates that they were probably younger than two years of age. Children, even babies, were ceasing to be anonymous; yet if this was the beginning, the dawn of a new attitude toward childhood, its fulfillment was still far in the future.

Certainly there was no separate world of childhood. Children shared the same games with adults, the same toys, the same fairy stories. They lived their lives together, never apart. The coarse village festivals depicted by Bruegel, showing men and women besotted with drink, groping for each other with unbridled lust, have children eating and drinking with the adults. Even, in the soberer pictures of wedding feasts and dances the children are enjoying themselves alongside their elders, doing the same things. Nor need we rely on paintings, alone, for we have a wonderfully de-

SAMUEL H. KRESS COLL., ALLENTOWN ART MUSEUM, ALLENTOWN, PA

tailed record of the childhood of Louis XIII. His physician kept a diary, recording each day what the young dauphin did. From this, we can perceive how his father, Henry IV, and the court treated him. It gives one an insight into aristocratic attitudes toward childhood, and into middle-class attitudes as well, for we have corroborative sources, though none so rich, for this period just before some of the most momentous changes in adults' attitudes toward children were about to take place.

Like the peasant children painted by Bruegel, the young prince was involved in adult life to an outstanding degree. At four Louis was taking part in adult ballets, once stark-naked as Cupid; at five he enjoyed hugely a farce about adultery; at seven he began to go to the theatre often. He started gambling at the same age; indeed, he was playing crambo at three. By seven he was also learning to ride and shoot and hunt. He relished blue stories, as well as fairy stories, with a group of courtiers of all ages: fairy stories did not belong exclusively to children; courtiers, particularly the ladies, loved them. Similarly, the games he played—Hide-and-seek, Fiddle-de-dee, Blindman's Buff—were all played with adults and adolescents as well as with his child companions.

Although the adult and childhood worlds intermixed intimately, there were some differences, particularly before the age of seven. The dauphin when very young played with dolls, rode a hobbyhorse, and rushed about the palace with his toy windmill; these were specifically the activities of infants. Before he was breeched, he was often dressed up as a girl. More surprising, however, was the amount of open sexuality permitted. The dauphin and his sister were stripped and placed naked in the king's bed, and when the children played sexually with each other, Henry IV and the court were hugely amused. The queen, a pious and rather austere woman, thought nothing of seizing his genitals in the presence of the court, and the dauphin often displayed himself, to the amusement of his staid middle-aged governess. He acquired the facts of life as soon as he could talk. At seven, however, all was changed. He was severely reprimanded for playing sexually with a girl his own age, and the need for modesty was constantly impressed upon him. The importance of this very detailed evidence from the dauphin's doctor, who saw nothing odd in it, stresses that the world of children and the world of adults were deeply involved. Children, even infants, were not thought of as requiring a special environment, special entertainments, special clothes; nor was it considered necessary to keep them apart from the sophistications and ribaldries of adult life. There were, however, some distinctions: actions that could be permitted, even joked about, in very young children had to stop as soon as they left infancy and became young adults.

In some ways the court was old-fashioned, for by 1600 there was growing up a new conception of childhood. This has been developed by the Schoolmen of the fifteenth century, and adopted and adapted by the educationalists of the Renaissance, especially Erasmus, Vives, and Mosellanus. It became the stock in trade of the Jesuits, who were to dominate the education of the aristocracy and the richer middle class of seventeenth-century Europe. This new attitude was based on the concepts that childhood was innocent and that it was the duty of adults to preserve this innocence. The child, surely, was a prey to passion and to irrationality, but just as innocence could be preserved, so passions could be repressed. The protected child could be guided by remorseless effort into the world of rational behavior; innocence could be transmogrified into adult morality. So even while the dauphin was playing with his naked sister to the ribald amusement of the court, the

Two Worlds

While the "old people" sing in Jan Steen's evocation of seventeenth-century Dutch home life, the small fry pipe and play. Steen's painting epitomizes the close co-existence of children and grownups that was then the rule. The little girl at lower right may be getting tipsy, but no one appears to mind, while the high jinks of the boy in the center delight everyone. By the next century, however, children were no longer welcome in adult society, in upper-class households at least. In the painting by Chardin at right, it is the young gentleman's governess, not his mother, who has brushed and groomed him to the point where he is ready for school.

NATIONAL GALLERY OF CANADA, OTTAWA

Jesuits were purging schoolbooks of indecencies and the religious at Port Royal were editing Terence so that he might be read at school. In many educational establishments discipline was becoming extremely stringent and the dangers of childish sexuality legislated against—boys were no longer put two or three to a bed, and there was a steady separation both of the sexes and of age groups. Parallel with this developed the cult of the Infant Jesus, which symbolized childish innocence. One of the most common devotional prints of the seventeenth century showed Christ summoning the little children to his knee. Increasingly, the child became an object of respect, a special creature with a different nature and different needs, which required separation and protection from the adult world. By 1700 for a child of middle-class family to be outwardly licentious would have been deeply shocking, to have been allowed to gamble for money at six would have appeared outrageous. By then, too, the child possessed his own literature, books carefully pruned of adult sophistication or broad humor, but also especially written for the young mind. The period between seven and adolescence was becoming a world of its own.

In the eighteenth century this new vision of childhood became the accepted social attitude of the affluent classes. Among the poor the old attitudes lingered on—poverty bred proximity, and so forced adults and children to share the same world. In villages and in slums children and adults still played games together, listened to the same stories, lived lives much more closely bound together, lives that could not be separated.

Nor was it only in the areas of manners and morals that changes took place in the lives of children between 1600 and 1800. This period also witnessed a revolution in the attitude toward the education of children—and many of the assumptions that we regard almost as belonging to human nature itself were adopted during this time. For example, everyone assumes that the processes of a literate education should develop with the developing child: reading should begin about four or five, writing follow, and then gradually, more sophisticated subjects should be added and become more complex as the child grows. Education now is tied almost inflexibly to the calendar age of children. In the modern world, at least in Europe and America, a class of children at a school will all be nearly the same age - a few months, perhaps, on either side of the average, but rarely as much as a year.

As with manners and morals, there were for a very long time two worlds of education: one belonging essentially to the Middle Ages, which persisted among backward people for a long time; and the other, basically our own, which took centuries to achieve its final organization and definition. The medieval child usually learned his letters with the local priest or a monk from a nearby monastery, more rarely in the singing schools attached to cathedrals, but the age at which he started his primary education would be dictated by his personal circumstances. Often, a boy would not start to learn Latin, without which all but the most basic learning was impossible, until he was in his teens, sometimes even twenty or older, simply because his economic situation prevented it. In the seventeenth century Girardon, the French sculptor, worked at home until he was sixteen; when his father, prosperous at last, sent him off to begin his studies. Still not unusual in Girardon's day, this practice had been customary in the fifteenth century, when old men, young men, adolescents, and children could all be found sitting in the same classroom, learning the same lessons. They turned up for classes, but no one cared

PRINTS DIV., N.Y.P.L.

School Days

The free-form, progressive classroom at left is a seventeenth-century French school. In the left foreground, pupils recite their lessons to the schoolmaster; the girls to the right are apparently playing with toys; and in the background, some boys pursue their independent projects. It was not until the seventeenth century that such young children were thought worth a teacher's special attention. By the nineteenth century this attention had hardened into a rigorous, disciplined program. The well-behaved children opposite work at the same task, at the same time, behind the same uncomfortable desks, in a Washington, D.C., classroom, in 1899.

about the rest of their lives. Sometimes, as we learn from Thomas Platter's story of his school days in the early sixteenth century, groups of students ranging in age from the early twenties to a mere ten, would wander in search of learning from France to Germany and back again. A young boy would be bound to an older boy, beg for him, be beaten by him, and might occasionally be taught by him, but always he would be fed and protected. Occasional jobs would enable them to attend classes and lectures; but usually they begged, and education proceeded by fits and starts. They lived like hippies and wandered like gypsies, begging, stealing, fighting; yet they were always hungry for books, for that learning that would open the doors of the professions. Platter was nineteen before he could read fluently, but within three years his hunger for learning led him to master Latin, Greek, and Hebrew. And in the end he became rector of Basel's most famous school.

Even in Platter's day, however, times were changing. The late Middle Ages witnessed the proliferation of colleges, particularly at Oxford and Cambridge and the University of Paris. Students entered the university at an early age—usually at fifteen, sometimes as young as twelve, though there was, of course, no bar to the very mature. Residence in colleges fixed them in one place, and parents could be certain that their sons would be subject to discipline, sent regularly to lectures and classes, and protected from the excesses of drink, the temptations of fornication, and the dangers of gambling. College rules became very strict; obedience was insisted upon, and whipping frequent for delinquency. Inexorably a world of learning, quite separate from the adult world, indeed, carefully protected from it, was created. In the sixteenth and seventeenth centuries all Etonians were taught in one large room. The boys were divided up into groups in accordance with the progress of their studies, and the usher and master would go from group to group. At this time few grammar schools or *lycées* had more than one master and one usher.

This system began to change at the end of the eighteenth century, and by the early part of the nineteenth century a new system had been established. Schoolrooms were divided up or added, boys of the same age were moved steadily from class to class, and as the numbers swelled, fees grew and so did the number of masters employed. Yet much of the adult world lingered on, even in the boarding schools, which were becoming increasingly popular in England. We know that at Eton, Harrow, Rugby, and elsewhere there was drinking, smoking, fighting with local boys, a great deal of gambling, and a considerable amount of surreptitious wenching. But reform went relentlessly on, creating a separate world of childhood and early youth. Even the leisure and amusements of schoolboys were differentiated. Organized team-games replaced casual, personal sporting activity; innocence was insisted upon and incessantly preached about; sex before entry into the adult world came to be regarded as a social crime; literature was even more carefully censored—the headmaster of Harrow in the mid-century would not allow the reading of any novel, for fear it would corrupt the reader; naturally gambling was forbidden and alcohol banned. Even food became different—far plainer than adult food and dominated by milk and suet puddings, which you may still hear an old-fashioned Englishman dismiss as nursery food. And school clothes changed, too. In the seventeenth century two ribbons at each shoulder marked a child's dress, otherwise it was the same as an adult's. In the eighteenth century children were frequently clothed in semifancy dress

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—sailor's costume, the kilt and bonnet of the Scottish Highlander, Vandyke dress for special occasions—rather as if society were searching for difference. Greater freedom was permitted to the child, and children were allowed trousers long before adults would wear them. But gradually, two basically separate forms of costume for children and adults evolved. By the early twentieth century boys between infancy and puberty wore short trousers, and their clothes were always far drabber than adults'—confined to grays and blues and blacks. At school children were clamped into uniforms as socially distinct as those of soldiers or prisoners.

In the European upper classes children in the nineteenth century were even excluded from adult society *in the home.* The children were forbidden most of the house and lived in day and night nurseries with nurses, governesses, or tutors, visiting the rest of the house and their parents only for very short periods. Indeed, the difference between the life of a sixteenth- and a late-nineteenth-century child is so vast as to be almost incomprehensible. Three centuries had created a private world for children.

Although this new attitude toward children developed in the middle classes, it seeped down into society as time passed. The pictures of working-class children of Victorian London or Paris show them still dressed as adults, usually in their parents' worn-out and cut-down clothes, and we now know that they participated in every form of adult life—indeed, they physically had no escape from it. But as affluence spread, the working class, too, was caught up in the system of mass education, and working-class children began to have a separate world forced upon them. Social legislation also took a hand. In the nineteenth and twentieth centuries children were excluded from public houses, forbidden to gamble or buy tobacco, and their sexual lives were regulated by the concept of the "age of consent"; for it was assumed that they would be innocent, and prefer innocence, unless a corrupt society forced sex upon them. So by World War I, speaking broadly, there were three ages—infancy, which had been shortened to the age of four or five; childhood, which ran from the end of infancy to late puberty for the lower classes and to early manhood for the rest; and adulthood. And no child anywhere in the Western world was expected to share the tastes, the appetites, the social life, of an adult.

And then the revolutionary change came. The change from medieval to modern had taken more than three centuries, but the revolution that frightens modern society is scarcely a decade old. To understand it, one must know why children had gradually been separated from the adult world, and their lives and education carefully regulated. The short answer is social need: after 1500 the Western world grew ever more complex, demanding more skilled and trained men for commerce and the professions. And for these activities boys rather than girls were needed, which is why attitudes toward the young male changed most of all. Also, the great empires—the French, the British, the Spanish, and the Dutch—required men with the habit of authority. The proconsuls of empire had to be stamped with the image of a gentleman, aware of obligations as well as privileges. Discipline, best enforced by regular schooling, proved the most efficacious mold for the colonial bureaucrat.

But society is never still, and even as the new attitudes toward childhood were becoming fully fledged, there were countermovements in social structure that were to make even profounder changes. Science and technology invaded more and more of economic and social life. From 1880 onward they increasingly dominated the activities of Western society. Their growth demanded a longer and longer education.

ROGER MOLLOCH © 1969 MAGNUM PHOTOS; OPPOSITE: UPI PHOTO BY DENNIS CONNOR

Alienation and Rebellion

Cut back to the essentials—a guitar, an expanse of sand, blue water, a bit of greenery, and a set of wheels—the young man at left withdraws to the beach at Chicago's Lincoln Park, on the shores of Lake Michigan. The scene opposite, photographed at Madison, Wisconsin, is little more than a hundred miles away geographically, but it is worlds apart from the tranquillity pictured at left. The young man screams in rage—not, our author would contend, because his anti-war protest has been broken up, but because of "four centuries of repression and exploitation."

Before World War I sixteen or seventeen was a not unusual age for a middle-class boy to leave school either in America or Europe. After World War II huge segments of the population, female as well as male, remained in the educational system to twenty-one and beyond, and the number increases every few years. Such a vast social change must necessarily have affected our attitudes toward childhood and youth, but there were other complex social forces at work as well. The great European powers lost their empires. Their need for conformity to a middle-class pattern weakened. America filled up, became urban, and its accepted social images of youth became blurred and confused at the same time. The whole purpose of education, other than the learning of crafts and skills, became entangled in debate. Add to this the psychoanalytical attacks on the Victorian concept of childish innocence, and the social confusion about how to treat childhood is easy to comprehend.

There were other muddying factors. The middle classes grew much richer, and the pressures on their children toward economic and social goals eased, too. They were pressurized neither to be Christian gentlemen nor Horatio Algers. And yet in spite of a myriad of warning signs that attitudes toward children needed to be changed, the attitudes belonging to an earlier and simpler world were still enforced. Children were not allowed to drink; parents and educators insisted on old patterns of overt deference and unquestioning obedience. Behavior, clothes, and hair styles had to conform to archaic standards; juvenile reading was still censored; sex was regarded as belonging to the adult world and certainly not to be practiced by those being educated. Repression, conformity, discipline, and exclusion were until lately the historically bred attitudes of most educationalists and parents.

Kept out of the adult world, the adolescents naturally created a world of their own choosing—one that incorporated their own music, their own morals, their own clothes, and their own literature. And they, of course, began naturally to capture the minds and imagination of the children who, though younger in age, nevertheless lived with them in the same basic educational territory. In consequence, during the past few years the period between infancy and adolescence has been sharply reduced, and may be reduced even further in the future.

Social movements and tensions in the adult world can be adjusted by politics, but adolescents and children have no such mechanism for their conflicts with the exclusive world of adults. And so the result has been, and must be, rebellion. That rebellion, however, is not due to the mistakes or difficulties of the last few years. Rarely do we look far enough into the past for the roots of our present problems. This revolution of youth has been building up for decades because we forced the growing child into a repressive and artificial world—a prison, indeed, that was the end product of four centuries of Western history, of that gradual exclusion of the maturing child from the world of adults. We can now look back with longing to the late medieval world, when, crude and simple as it was, men, women, and children lived their lives together, shared the same morals as well as the same games, the same excesses as well as the same austerities. In essence, youth today is rebelling against four centuries of repression and exploitation.

J. H. Plumb, Horizon's *European Consulting Editor, regularly writes the column "In the Light of the Past"—when he isn't taking time out to write a longer essay, like "The Victorians Unbuttoned" for the Autumn, 1969, issue.*

Their Work Is Child's Play

The Opies, a remarkable English couple, may know more about the pastimes of children than anyone else on earth

Wednesday mornings, for Peter and Iona Opie, are playground mornings. They make a ritual of them, turning up at the yard of the county junior school in Liss, the village in the south of England where they live, to watch the games children play. The children, who range in age from six to twelve, seem to find nothing prying or patronizing in the indefatigable questions and note-taking of a couple in their middle age. The Opies are their friends. One morning recently, Peter Opie reports, a little girl ran in a circle around him, chanting:

> Pinch or punch or join in the ring,
> Tell me your sweetheart's name.

"Iona had warned me about that, and so I knew exactly what to do. 'That's easy for me,' I said. 'It's my wife.'"

"Later on," Iona Opie adds, "they clustered around us, and one of them asked me, 'Do you have enough for a book yet?' Sometimes I begin to wonder whether they're making things up just for us."

I doubt that any child, no matter how clever or imaginative, could fool the Opies for long. There is probably no one in the world who knows so much about the folklore of childhood. For more than twenty-five years they have been studying the complex culture, with its special rites, codes, and beliefs, that children have evolved for themselves out of the sight of grown-ups. If their main works have appeared at rare intervals, it is because they are collectors as well as writers, and the amassing of a great collection takes time. Ten years of work went into their last book, *Children's Games in Street and Playground,* which was published in 1969. More than ten thousand schoolchildren from all parts of the British Isles confided to the Opies the intricate unwritten rules of their games, recited their gibberish rhymes or their incantations against the dark, and boasted of their feats of daring. ("First of all you spreadeagle your left hand. Then you take the knife in your other . . .") By the time they have enough for another book, most of the children playing today in the Liss schoolyard will be experimenting with games more adult than Hide-and-seek, Kingy, and Peep Behind the Curtain.

The Opies believe that our vision of childhood has been based for too long on the relationship of adult to child, rather than on that of child to child, so often incomprehensible and inaccessible. Here, the generation gap is uncomfortably real. "Adults have so little idea of what their children are doing," Peter Opie says. "They think their children are just messing around, when actually they are playing games with a highly formal set of rules. Let us say that you see a group of children sitting on a wall. Are they just there sunning themselves and being lazy? But wait a moment. Suddenly another child will run up and touch one of them. Only then do you discover that a game is being played."

The Opies themselves originally approached the subject of childhood from the opposite direction. Their first collaboration was *The Oxford Dictionary of Nursery Rhymes* (1951). "By its nature a nursery rhyme is a jingle preserved and propagated not by children but by adults," they have written, "and in this sense it is . . . a rhyme which is adult approved." While they were working on the dictionary, people kept sending them examples of what seemed to be modern nursery rhymes. The Opies soon recognized that these were nothing of the kind, but were verses transmitted from one child to another and never intended for adult ears. It was one of those inspired perceptions that seem so simple in retrospect, but that only a vast amount of knowledge can account for. If the Opies had searched the jungles of New Guinea or the Amazon, they could not have stumbled on a primitive "culture" more "thriving and unselfconscious" than the one they found at their doorstep—or in their home, for they had three small children of their own.

The Lore and Language of Schoolchildren (1959) and *Children's Games in Street and Playground*—the titles sound deceptively dry and formidable—are only the beginning, apparently, of the Opies' investigation of the underground culture of childhood. Their study of games may eventually run to three or four volumes. "This is one you won't know, because it has only just been made up," a ten-year-old girl tells them, and recites a game-starting rhyme, which, with a few variations, children are chanting in playgrounds from Norway to Australia and which may be older than her great-grandmother. Some games are even older than that; children are such strict observers of tradition. Tug of War, Blindman's Buff, and Hide-and-seek, for example, were played more than two thousand years ago in Periclean Athens, and Chaucer's Canterbury pilgrims drew straws to decide who would narrate the first tale, just as children do to pick the person who will be "it" or "he."

But many old favorites, such as King of the Castle, Sardines, and Leapfrog, are diminishing in popularity. "We feel it is no coincidence," the Opies write, "that the games whose decline is most pronounced are those which are best known to adults, and therefore most

By ROBERT COWLEY

BOTH: DEREK BALES

often promoted by them . . ." Games live only as long as they have a reason to live, and the Opies see nothing intrinsically sad in the gradual disappearance of any particular one. Old games die out so new ones can flourish in their place: we threaten games most when we try to preserve them.

They deplore the growing tendency to regiment playtime, a tendency that is no less misguided because it is so widespread. The Opies have no use for the benevolent assumptions of the welfare state: Peter Opie campaigned vigorously for the Conservatives in the recent election. "It seems to be presumed that children today (unlike those in the past) have few diversions of their own," they write in *Children's Games,* "that they are incapable of self-organization, have become addicted to spectator amusements, and will languish if left to rely on their own resources." Teachers and professional play-leaders herd their charges into playgrounds, fenced-in and asphalt-covered, where they can watch them easily and keep them under control. They seem to assume that without adult guidance, children will dominate and destroy one another, like the wanton boys in *Lord of the Flies.*

William Golding, the Opies suggest, mistook the restricted and artificially structured environment of boarding school for the real world of boys. "Children shouldn't be protected from one another," Opie says. "What we should find remarkable is that they do co-operate, that they aren't always at other children's throats." They have observed that when children are cooped up in playgrounds, their games become more aggressive than when they play in open spaces. It is the streets and wastelands and the secret places that children prefer: "To a child the best parts of a park are the parts that are the least maintained." Take these away, and children will begin to act badly.

The singular collaboration of the Opies began with their marriage; he had written fiction before. Peter Opie still does most of the writing, and Iona Opie, most of the research. They also have a network of people who report to them. Though she takes frequent field trips throughout the British Isles, he does not like to leave his home and work. "The other day," he says, "I walked around my property. I think it was the first time I had done that in the ten years we've been here." He writes in the library, the largest room in the house; from his window he can see an acre of garden walks and the high brick walls that surround the place. Neat piles of the London *Times* reach to the height of his massive mahogany desk, and thousands of children's books—the largest such collection in England—crowd the shelves.

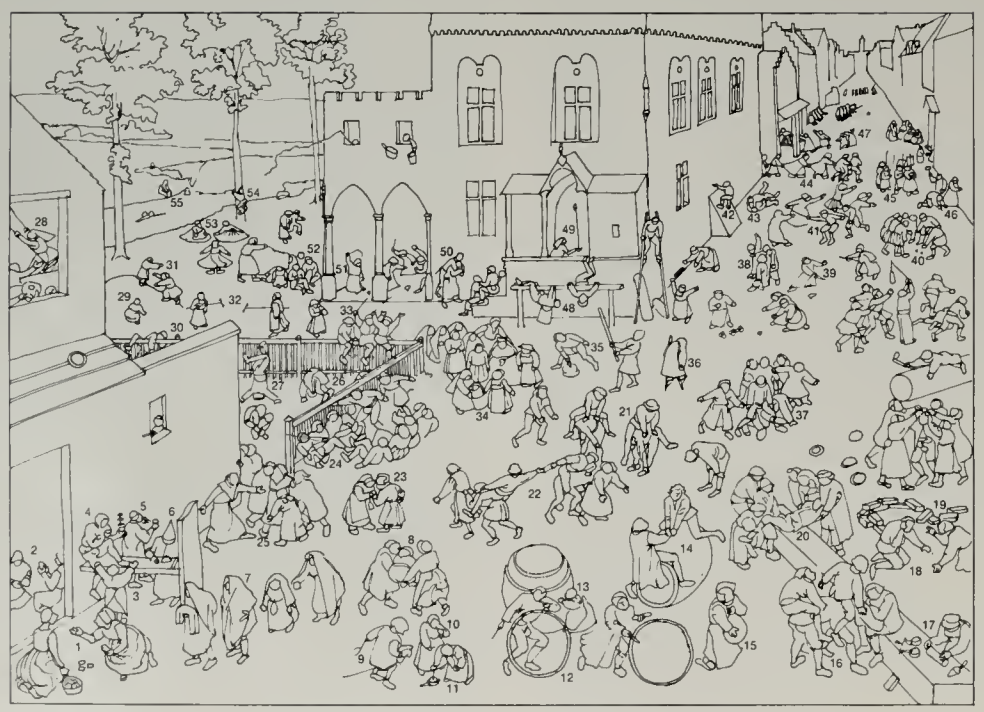
Most of their working lives revolves around Iona Opie's study—the Folklore Room—where their collections of raw materials are filed. Here, bookcases contain row upon row of canvas folders, standing upright and bound in different colors to indicate the project they belong to: BALL GAMES—A TO C; BALL GAMES—BAD EGGS; BALL BOUNCE, I, II, III, IV; KING BALL. There seems to be nothing about children that the Opies do not collect: it is a house loaded with surprises. Upstairs, they have filled a small museum with antique toys. "This is the Opies' playroom," Iona Opie says. Exhibited in glass cases are transportation toys, moving-picture toys, the earliest jigsaw puzzle, the earliest racing game, the earliest peep show, the first British postcard, postmarked on the day of issue, the first American postcard, the first commemorative postcard, the first Christmas card (1843). Opie lifts the lid of the case for old chocolate boxes. "Here, would you like to smell ninety-year-old chocolate?" On one wall the ubiquitous shelves are stacked from floor to ceiling with identical-sized cardboard boxes, each meticulously labeled: BALLS, CUP & BALLS; TOPS, GYROSCOPIC; TOPS, WOOD 19TH CENT.; YO-YOS, MICE. A low attic room under the sharp Victorian eaves secretes another thousand boxes. DOLLS, CELLULOID; DOLLS, ACROBATIC; DOLLS, SOPHISTICATED; FEEDING BOTTLES, 1930–40. Even their two sons collect. One owns ten thousand metal soldiers and thirty thousand plastic ones; the other has collected, among other objects, three hundred different kinds of yogurt containers.

"I've always felt that if you really want to understand a thing, you have to own it," Opie says, and it is certainly a novel idea. "If you want to appreciate an eighteenth-century author, you should really read him in an eighteenth-century edition and not a modern reprint. If you're writing about ball games, you should know how the ball feels. Just as we collect trivia, we principally write about it, but for the serious adult. Trivia is the best indication of what has happened to bigger things. After all, a child becomes a man, doesn't he?"

Pursuing their researches, Iona Opie dashes off, as husband Peter, with his companions, runs after her in the ancient game Chain He.

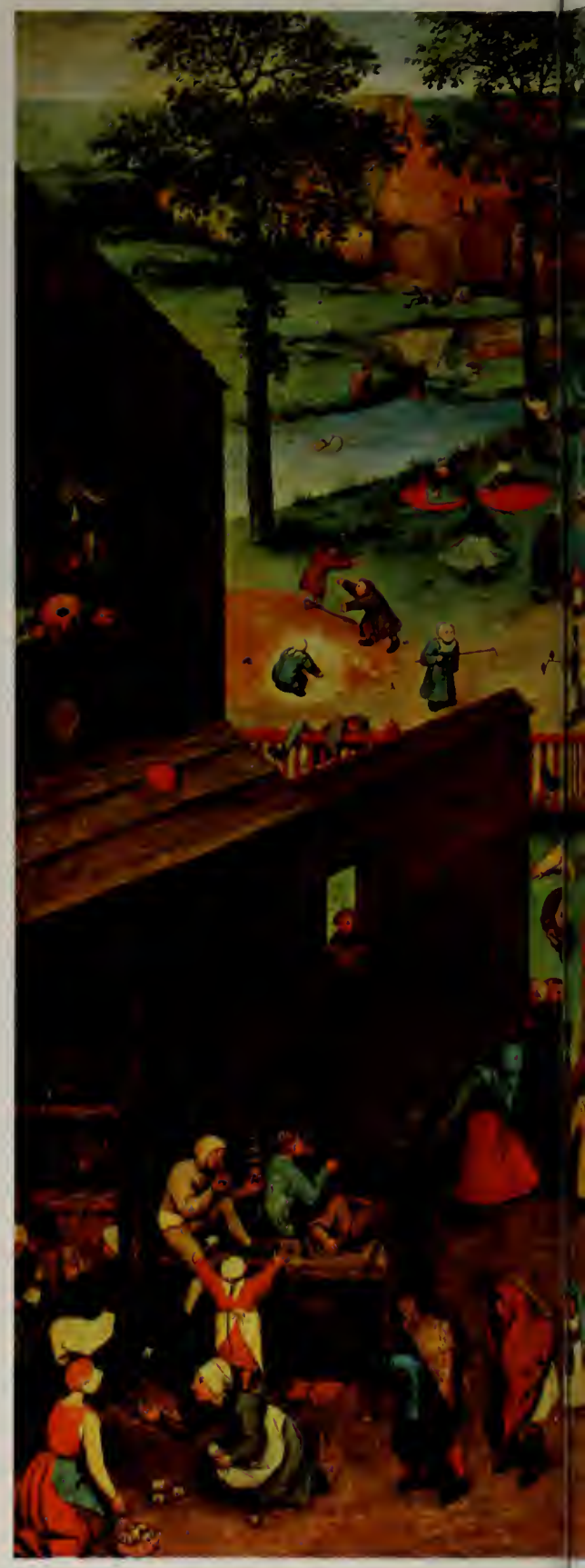
GAMES (YOUNG) PEOPLE PLAY

In Bruegel's painting *Children's Games*
Flemish boys and girls
amuse themselves in much the same ways
our own youngsters do—
or as children did in ancient Athens



1. Knucklebones, or Jacks
2. Dolls
3. A rattle
4. Working an apple mill
5. Blowing soap bubbles
6. Playing with a bird
7. A make-believe christening
8. Carry My Lady to London
9. Hobbyhorse
10. Fife and drum
11. Making mud pies
12. Bowling hoops
13. Shouting into a barrel
14. Riding a barrel
15. Blowing up a pig's-bladder balloon
16. Buck Buck
17. Playing "store"
18. Mumblety-peg
19. Building with bricks
20. Bounce the Baby
21. Leapfrog
22. Tug of War
23. Odds or Evens
24. Running the gantlet
25. Blindman's Buff
26. Somersaulting
27. Doing a headstand
28. Swinging
29. Playing in a sand pile
30. Climbing a fence
31. King of the Mountain
32. Tilting
33. Riding a fence
34. A make-believe wedding procession
35. Beat the Kettle
36. Walking on stilts
37. Walk, Moon, Walk
38. Loggats
39. Tipcat
40. Marbles
41. Baste the Bear
42. Climbing a cellar door
43. Wrestling
44. Crack the Whip
45. A make-believe procession
46. Span Button
47. Follow-the-leader
48. Swinging on a rail
49. Balancing a broom
50. Piggyback
51. Whipping tops
52. Frau Rose
53. Making "cheeses"
54. Climbing a tree
55. Swimming

Not all of these sixteenth-century games can be confidently identified. The group at far right, for example, appears to be pulling the hair of a child in the center but what is the name of the game? Readers are invited to try their own hand at deciphering those games not listed in this key.



Our knowledge of how boys and girls lived before the start of our own era comes to us mainly through art. And no report on the community of childhood more repays our scrutiny than Bruegel's picture of street games, painted in 1560. It is not, as it first appears to be, a fanciful portrayal of stunted figures disporting

KUNSTHISTORISCHES MUSEUM, VIENNA

themselves in a paradisiac city. Nor is it a condescending adult's-eye view of youngsters at play. It is a picture of children as they see themselves in their own society: a marvelously accurate delineation of their engagement in traditional sports, each child (large or small) being intent on what he is doing, concentrating on his own play group, and behaving, as in real life, as if unaware that anyone might be watching and thinking his behavior strange. Indeed, it is a picture with a message: a message that grows in significance year by year.

For the very reason, perhaps, that the community of childhood is all about us and members of it have been known to dash in and out of our homes, pretending to communicate with us—so that we think we know them—children, as a community, have been little studied, and much misrepresented. Myths about them abound. It is averred on the one side, for instance, that the young are impatient to be grownups like ourselves and enjoy our privileges; on the other, that they are a tribe about to break out in rebellion against us. Where does the reality lie?

The clue, we believe, may be found in Bruegel's picture. The children he shows are neither fawning on adults nor

A KEY TO BRUEGEL'S PAINTING APPEARS ON PAGE 16.

Buck Buck (16)

Walking on stilts (36)

Blindman's Buff (25)

Walk, Moon, Walk (37)

Bowling a hoop (12)

attacking them; they are independent of them. There is scarcely an adult in sight. Bruegel's children are a race apart, and adult values and adult enthusiasms are not their concern. What is vital to them are the mores of their own society and their relationships with one another. And modern children, we suspect, are little different. It is an enormous myth that children are no longer aware of traditional amusements and are unable to entertain themselves when they are left to their own devices. At least this is the way the evidence we have gathered points.

But it is easy to see how the myth arose. Even today, after twenty years of reporting on the juvenile community, our initial reaction when entering a playground or sidling down a back street where children are congregated is one of confusion. The kids in this particular spot do not appear to be behaving like kids elsewhere. They are rushing about wildly, they are squabbling, they are killing time or each other, they are not following patterns hallowed by tradition. It is only when we have taken a grip on ourselves, adjusted our eyes to the scene, and trusted our knowledge and past experience that we realize once again that we are not among a crowd of small Yahoos, but witnessing a scene similar to the one Bruegel saw four hundred years ago.

Bruegel's achievement is that instead of giving an outsider's impression of the struggle and hurly-burly of young children at play, he portrays two hundred and fifty individuals, each engaged in a specific sport and each knowing his exact place in that sport. Altogether, Bruegel depicts some seventy-five pursuits, showing them so precisely that almost every one can be identified. And it turns out that nearly every game can still be seen, even today, in the back streets of Europe or America.

Furthermore, children play the games without need of instructors or umpires or spectators, without apportionment of space, and with the minimum of equipment. They play them not for renown but for pleasure; not because their elders encourage them but because they are games passed down in the lore of their society. Should not adults, with their manipulated, partisan addiction to box-office spectator sports, stand in awe of this deep-rooted culture, at our presumption that youth has everything to learn from us and we have nothing to learn from youth?

Of course a skeptic might say that the amusements depicted by Bruegel have little to do with tradition; that it is as natural to children to climb trees, stand on their heads, ride on each other's backs, and even, perhaps, to play Leapfrog as it is for them to laugh and cry. Examination of Bruegel's painting, however, reveals manifestations of tradition that are truly remarkable.

In the left-hand corner of the foreground, two girls are playing with

Whipping a top (51)

Knucklebones, or Jacks (1)

Leapfrog (21)

Running the gantlet (24)

Marbles (40)

knucklebones, as children around the world continue to play with jacks or fivestones or, in France, with plastic replicas of knucklebones, and as girls used to do in ancient Greece, fifteen hundred years before this picture was painted.

In the foreground on the right-hand side, a lad sits on a beam to act as "pillow," while two others have made backs, and a further two have mounted them. They are playing that game in which one of the riders raises a hand, and the stooping player must guess which hand he holds up, or how many fingers. It is a game known in France, Germany, Scandinavia, Spain, Turkey, Russia, and Japan, as well as in English-speaking countries. Often its name sounds like "Buck Buck" or "Bok Bok"; and it is another game that can be traced back to antiquity. Petronius Arbiter describes it in his *Satyricon,* and adds the detail that the boy holding up his fingers called out: *"Bucca, bucca, quot sunt hic?"* Thus even the name of the game seems to have survived from the time of Nero.

In other parts of the picture, children are to be seen playing Blindman's Buff, Walk, Moon, Walk, Hide-and-seek, Loggats, Follow-the-leader, Mumble-ty-peg, Marbles, Tipcat, Span Button, Baste the Bear, King of the Mountain, and Frau Rose. Children bowl hoops, whip tops, walk on stilts, blow soap bubbles, work an apple mill, and make "cheeses" with their dresses. Two boys are made to run the gauntlet, and another is bumped (Bounce the Baby), precisely as children punish each other today. No two groups of children play the same game; and for the sake of clarity, no group impinges on the playing space of another group, as ordinarily occurs in such a concourse. It may thus be presumed that Bruegel was making a pictorial catalogue of the sports of his day (as he also did of proverbs), and possibly he depicted every childhood game that was known to him.

If this is so, it is as interesting to consider the games that are not included as those that are. There are few chasing games, such as Chain Tag, Chinese Tag, and Touch Color, so much played in the present day. There are no tracking games, no racing games, no crossing-the-street games, like Fairy Footsteps, Curb or Wall, and Last Across. More unexpectedly, there are no circle games, and apparently no singing games, such as Oranges and Lemons and Nuts in May. Further, there is no rope-skipping, which is so common today, and, of course, no bouncing of rubber balls.

If children today, aged, say, from five to eleven, continue—with little adult subvention—to play most of the games that Bruegel knew, it is surely remarkable. But what is to be deduced if they also possess a host of other games? May it be that the community of childhood is even more thriving in our time than it was in the sixteenth century?

Playing Grownup

In the Sung dynasty painting
A Hundred Children at Play upper-class Chinese boys
and girls solemnly act out roles
awaiting them in the polished world of their parents

Some games *make* fun. Some games *are* fun. But it is doubtful if any game is free of an element of mockery, rivalry, or cruelty. Here we are looking at a charming Chinese painting of the late Sung period. It is a fan-shaped album leaf entitled *A Hundred Children at Play*. At first glance, it reminds us of Bruegel's *Children's Games* (see pages 16 and 17). But closer observation makes us wonder whether the two pictures show the same sort of games and play at all. Although both are crowded with human figures engaged in sportive activities, there are significant differences between them.

Look first at the Flemish painting. The participants are plainly taking part in games that follow set rules. Many of these games emphasize backbreaking aggression *v.* teeth-gritting stoicism, to establish manliness. Others are contests, with bitterly resisted challenges of skill or strength. A few are make-believe, somewhat ritualized, imitations of adult activities.

Inspection of the Chinese painting shows a very different scene. Here are no games of rivalry. There is no element of glory seeking, of debased forms of knightly combat. No one aims to be king of the hill or cock of the walk. What we see is a large company (count them—actually a hundred) of very small children. But all is decorum; there is no precedence seeking, no violence. The Flemings seem brutes by contrast.

Although extant examples are rare, paintings on the theme of *A Hundred Children at Play* seem to have been popular in the twelfth and thirteenth centuries in China. An example is the one attributed to the twelfth-century artist Su Han-ch'en, entitled *A Hundred Children Enjoying the Spring*. This shows an improbable assembly of children of the gentry engaged in pseudo-adult activities—not *caricaturing* adults, but *being* adults. Some admire stylish gardens; some perform classical music on the zither; some study a calligraphic scroll; some take part in a ceremonial procession. All are precocious conformists. Besides this, a number of Sung paintings of children engaged in innocent and realistic games have survived, but they show little similarity to the picture we have here.

The hundred-children theme seems to lack antecedents, unlike other themes favored by Sung painters—such as rugged landscapes and tasteful arrangements of birds and flowers—which have their precursors and prototypes in pre-Sung times. We seem to have a new vogue, appearing in the tense and somewhat effete decades during which northern China was occupied by Manchurian nomads, just before the whole nation was overrun, like the rest of Asia, by the Mongol hordes.

An antecedent has, in fact, been claimed for the form. The phrase "hundred children tents" turns up in Chinese literature many centuries be-

By EDWARD H. SCHAFER

THE CLEVELAND MUSEUM OF ART, PURCHASE FROM THE J. H. WADE FUND

A warrior of the steppes

Northern fur-hatted nomads dancing

Acrobat with parasol

Ambassador's guard of honor

fore the Sung dynasty, and some students have assumed that it referred to painted canopies or draperies analogous to the hundred children pictures of the Sung era. But it now appears that this interpretation is anachronistic. The hundred children tents were not pictorial compositions at all, but actual clusters of miniature tents of blue felt, in the style of Mongolian yurts. "Hundred," as commonly used in Chinese phrases, represents a large round number. "Children" is metaphorical, as it frequently is, for diminutive things. Hundred children tents thus means "many tiny tents," and the reference is to the fashionable tents of foreign origin that were pitched throughout the gardens of aristocratic estates for gala parties. There is only a verbal similarity to our later painting of *A Hundred Children at Play*. In post-Sung times—perhaps in the Sung period itself—the expression "hundred children" was a cliché suggesting "numerous progeny," and our painting could be retrospectively interpreted as "a display of a gratifyingly large family," embodying an element of fertility magic. Still, the genre itself seems to have been a unique manifestation of the twelfth and thirteenth centuries.

A glance at the setting of the antics represented by our anonymous artist reveals its privileged, upper-class setting. Here are no rowdies or hoydens playing in street and alley. These are well-behaved boys and girls of the best families spaced neatly about a large, rich patio, itself designed in the best aristocratic mode, with characteristic meandering balustrades. There is an artificial pond, complete with aquatic plants, and a fine tree. Especially prominent are two large, grotesquely contorted, and pock-marked stones, of the kind whose vogue in the twelfth and thirteenth centuries amounted to a mania. These are penetrated by handsome flowering shrubs, in the modish asymmetric style.

The inhabitants of this luxurious landscape are juveniles, all of about the same size and shape, most of them wearing bland, pleasant, and often gay expressions. Certainly none of them seems malicious or aggressive. They are frozen in recognizable attitudes that typify their mood or transient role in the painted scene. The heads of the boys are partly shaven, but retain the earlocks and scalp lock characteristic of the age; the girls have their hair twisted in buns over their ears. Unlike peasant children, whether in China or Europe, they have not been forced into grown-up occupations and responsibilities. Although they are embryonic adults, they are still captive inhabitants of a separate children's world—kept in privileged seclusion in the women's quarters of well-to-do households until the girls are married off, to become adults by authoritarian decree, or until the boys are formally "capped," usually at the age of twenty, to mark their ceremonial entrance into the world of responsible citizens. These are real children of the gentry—sleek, plump, pampered, and indulged—not miniature adults, despite the pretense of adulthood in many of their costumes, in their conspicuous make-up and false mustaches.

The question is—what are they up to? Unlike the rustics in the Bruegel painting, they are not playing games. The picture does not even display a frolic or romp, as at a birthday party. In short, this is not a genre picture at all. It does not attempt to show how actual children amused themselves in medieval China. The participants in this scene, neatly dispersed like so many infantile constellations, without urgency, disorder, or collisions, make up a mannered and unreal microcosm of the adult world.

Ignore the relatively passive children in everyday clothing, whose roles are not always quite clear. (There are not many of them, and they usually seem to be mere spectators painted in to round out the formal requirement of a "hundred" bodies.) The rest—the majority—are active; they pose and posture in outfits identifying their pretended ranks and professions. An extreme case of disguise is the child whose legs appear beneath the canopy-shaped construction in the form of a

Servants mocking a mandarin

Sacred crane

A figure in an ancient legend

Boy with doll

Ambassador bearing an elephant tusk

sacred Manchurian crane. He and his allies evidently re-enact a version of a classical, probably barely understood, myth. Jugglers, acrobats, and dancers identify themselves by their odd postures, as the actors do by their masks. There is an abundance of flute players, not putting on solo performances, but accompanying the mimes nearest them. There are also other musical accompaniments, such as that provided by the mustachioed boy who beats a gong while a monstrously masked figure acts out some ancient legend—doubtless a miniature version of a religious mystery. In the lower left corner, figures that evidently represent northern nomads, wearing fur hats, dance to the accompaniment of a ring of musicians. There are similar vigorous goings on in the upper left corner, where a pair of boys in hobbyhorse outfits, wearing pointed hats, also seem to mime horsemen of the steppes. To their right, near one of the fantastic garden rocks, are two Chinese soldiers, with characteristic lozenge-shaped shields.

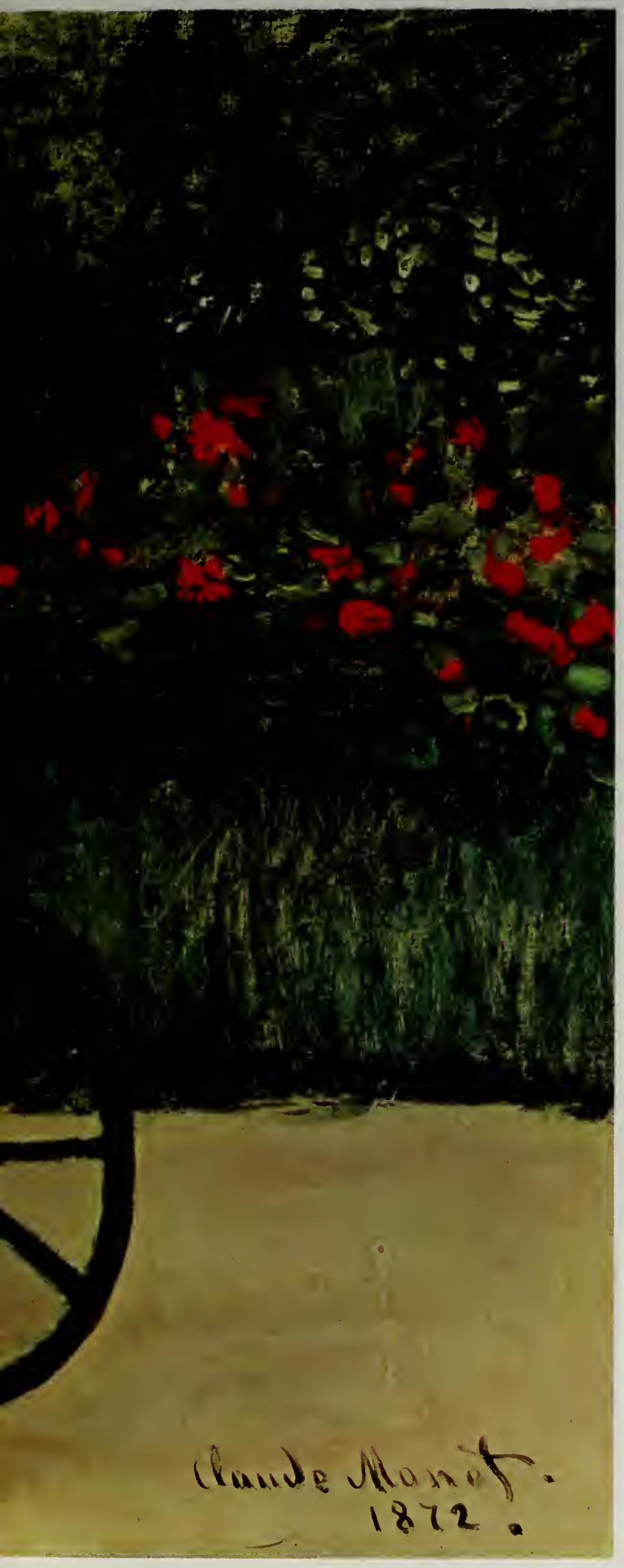
The more stable, sober, and distinguished personages are attended by "servants." A good example is the Buddhist monk, with shaven pate and rosary, placed near the left border. The attendants often shade such notables with umbrellas, but they laugh and prance at the same time—note the leaping brats at the bottom of the picture, just right of center. Parody is evident in the figure of a pompous mandarin, somewhat to the right of the monk. He carries a gigantic writing brush. Just to the right of this noble visitor from an ivory tower is a strange figure—a bearded dwarf in outlandish costume, carrying an elephant tusk. He is preceded by an escort with clashing cymbals. Possibly the strangely garbed figure just ahead of him, with a sword over his shoulder, forms part of the same procession, as a guard of honor. The whole group represents a tribute-bearing embassy headed for the imperial court, bearing the much-prized ivory of Cambodia or Champa or Malaya as a token of submission to the Son of Heaven The mere presence of such an honored foreigner helps to confirm the upper-class status of this assemblage of well-behaved youngsters —they are quite familiar with embassies and other such grand doings!

Carefully costumed and choreographed, these children act out the larger society in which they are not yet allowed to participate. They mimic everyday life on all respectable social levels—a variety of vocations and occupations, both religious and secular, are represented, but there are no peasants, artisans, or shopkeepers! Some of them are even acting out the roles of actors. It is an imaginary, unreal fancy-dress party—a fantastic masquerade, with glimmerings of farce and satire.

Venerable Chinese tradition regularly demanded that important scholars, writers, and educated mandarins should have been precocious children. Their official biographies have them memorizing the classics and writing dazzling quatrains at the age of five. But this biographical requirement was purely formal. Real children are seldom mentioned in medieval literature, except as rare instances in folk tales and mythology, in sad poems written by their fathers on their premature deaths, or in the counterfeit babyhoods of predestined saints, heroes, and monarchs. Visiting sages, court poets, and other dignitaries might pat the heads of upper-class children indulgently and predict great careers for them, but the aristocratic children certainly outnumbered the distinguished careers available. Some of the children in our painting might turn out to be venerable monks, respected scholars, or popular musicians. They are shown at play, imagining these happy future careers. Underneath their clowning is the anticipation that one day they may be playing such imposing parts in earnest. But the percentage of spoiled wastrels, peculating tax collectors, and puritanical and oppressive magistrates is certain to have proved very high.

Edward Schafer is Professor of Oriental Languages at the University of California at Berkeley and author of, among other works, The Vermillion Bird.

Jean Monet on a Mechanical Horse, COLL OF MR. AND MRS. NATHAN CUMMINGS



A PORTFOLIO

Children As Seen By Their Fathers

They are beautiful,
or handsome, of course—and sensitive,
and unusually bright.
Painted by their own talented fathers,
each reflects an image
of childhood imposed by a loving adult

Painters traditionally make use of the subjects nearest to hand—witness the many still lifes of the fruit, fish, and flowers from the kitchen table. Just as available, though perhaps not so uncomplaining, are the children of painters. Jean Renoir was posing for his father long before he could walk or talk; George Bellows's daughter Jean received the going rate for models—one dollar an hour. In portraying their children the painters included in our portfolio also depicted some of the changing concepts of childhood. Rubens's sons and Gainsborough's daughters are formally togged out in miniature versions of grown-up clothes; Bellows's daughter and Picasso's son are playing dress-up, portraying roles for their painter-fathers; Jean Monet is riding a combination hobby-horse-tricycle. Only the last painting, which is also the most recent, shows a little boy, Jamie Wyeth, in his everyday clothes and his natural environment, without props or furbelows—the child as a child in his own right. Whatever one's concept of childhood, the paintings on the following pages convey both a love of painting and a love of children. —K.A.E.

The Innocent: Jean Monet

Monet painted his first son, Jean, riding a mechanical hobby-horse in 1872, when the child was five years old, perhaps in the garden of the Argenteuil house at which the family was staying. Despite the usual financial difficulties, it was a happy summer (Renoir came to call), and Monet combined the sunlight, red flowers, and small, serious-faced boy into a summery, and slightly haunting, evocation of childhood.

NATIONAL GALLERY, LONDON

Little Women: Mary and Margaret Gainsborough

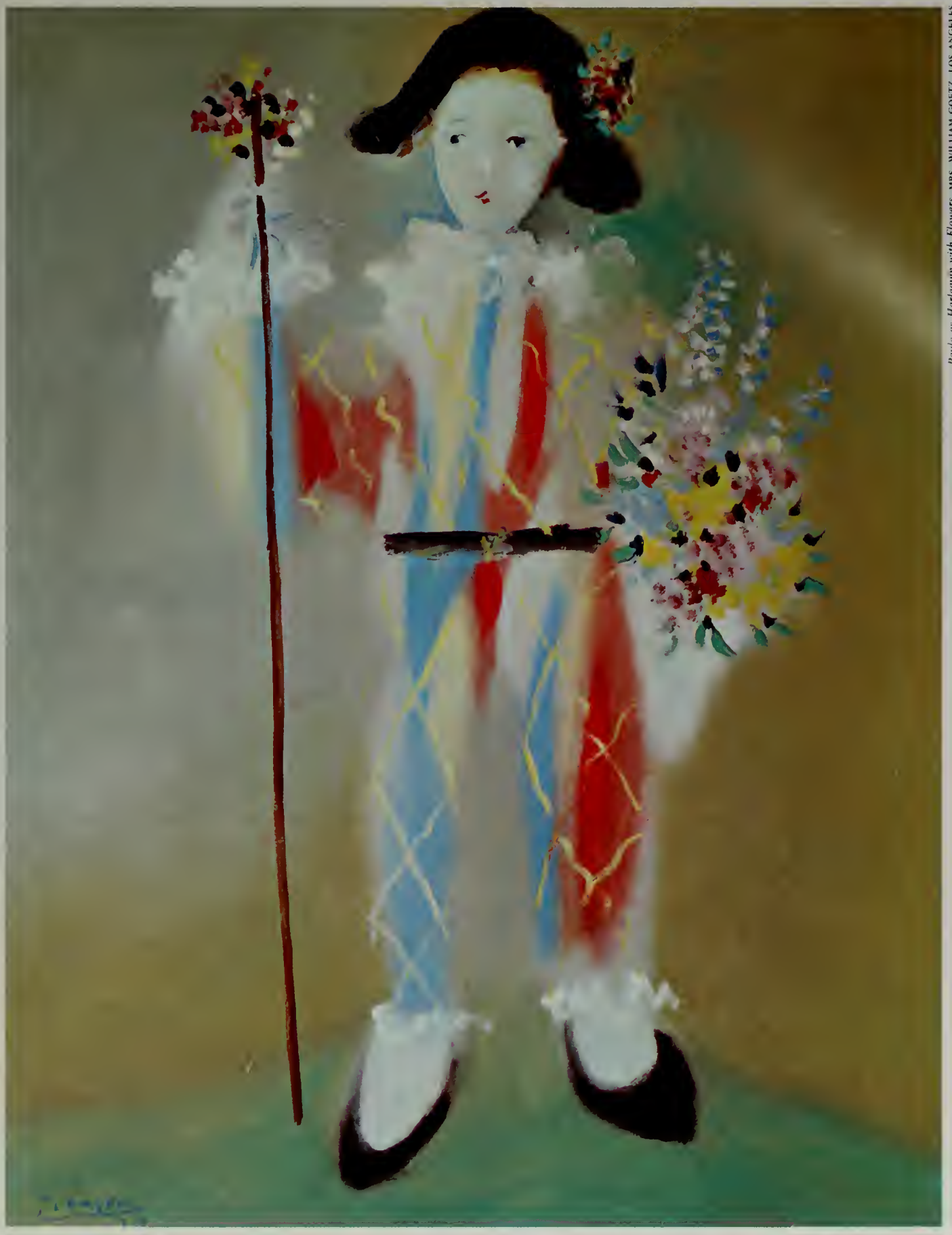
The Painter's Daughters Chasing a Butterfly, *above, an unfinished double portrait of his daughters Mary, at left, and Margaret, was done by Thomas Gainsborough sometime in the late 1750's, when they were still very young, perhaps four and six. Often used as subjects by Gainsborough—he couldn't afford regular sitters then—the girls suggest the fleeting joys of childhood, as quickly gone as the butterfly Mary is vainly trying to catch.*

Little Men: Albert and Nicolas Rubens

Albert and Nicolas Rubens, opposite, were painted by their father about 1624, when the older boy, Albert, was around eleven, and the younger around seven. Done probably to cheer his wife Isabella, whose daughter had died in 1623, the painting is elaborate in costume and setting, but depicts with sensitivity the robust characters of the young boys. Albert, befitting his years, is casual and grown-up, while Nicolas is more intent on his pet finch.

The Artist's Sons, Albert and Nicolas, LIECHTENSTEIN COLL., VADUZ

Lady Jean, BY GEORGE BELLOWS, YALE UNIVERSITY ART GALLERY, BEQUEST OF STEPHEN C. CLARK



Paulo as Harlequin with Flowers. MRS. WILLIAM GOETZ, LOS ANGELES

Little Doll: Jean Bellows

A lovely, serious, blue-eyed charmer, opposite, "Lady" Jean Bellows, aged nine, was painted by her father in 1924. Jean dearly loved to pose for her adored parent, but became quite impatient when the old-fashioned costume, "a genuine relic," grew hot and the standing tedious; her equally adoring father allowed her to sit down as much as possible.

Little Plaything: Paulo Picasso

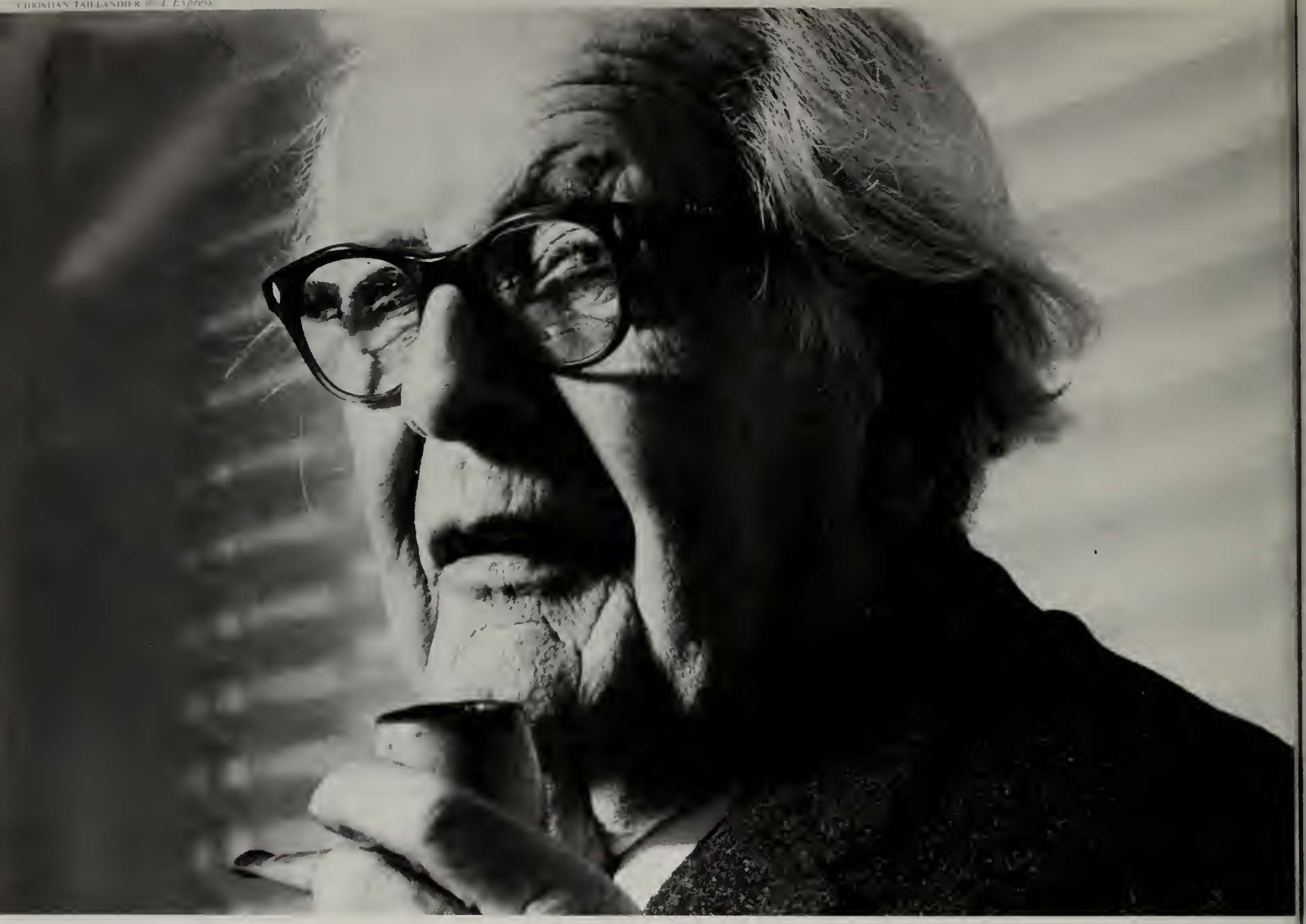
Picasso's first-born, nicknamed Paulo, was a delight to him, and often a model for his pencil and brush. Above, Paulo appears as a tiny harlequin, a wand in one hand, a bouquet in the other, in a painting done in 1925, when the boy was four. Picasso enjoyed showing Paulo in make-believe costumes; he also painted him as Pierrot and as a toreador.

COURTESY OF MRS. ANDREW WYETH

A World of His Own: Jamie Wyeth

The portrait of Jamie Wyeth at left, painted in 1952, differs from many paintings of children in that it neither depicts the child as a grownup, nor presents him in make-believe dress-up garb. Entitled Faraway, *the painting shows Jamie in a pensive mood, tightly hugging his knees as the tail of his Davy Crockett hat droops disconsolately down his back. The mood and expression were occasioned by a disaster of childhood—the loss of a lead soldier. The faintly stubborn set of the jaw perhaps reflects the five-year-old child's determination to abandon the search:* I *care nothing for the old toy anyway;* you *go hunting among the tall grass if you wish—but leave me here alone, in peace. As perhaps is the wont of painter-fathers, Andrew Wyeth also abandoned the search, to take up his paintbrush instead and produce a remarkable portrait of a preoccupied, dreaming child.*

CHRISTIAN TAILLANDIER for *L'Express*



MEASURING YOUNG MINDS

The venerable Swiss savant Jean Piaget keeps learning more about the way human beings acquire knowledge. How? By talking to children

By DAVID ELKIND

He is still, at seventy-four, a familiar sight in the streets of Geneva, pedaling by on his bicycle or trudging along—tall, stoop-shouldered, and somewhat portly—as he mulls over some new problem arising out of his most recent investigations into the mystery of how knowledge develops in the young human being. A pipe juts from between his teeth, and a mass of fine white hair billows out around his blue beret. Indoors and close up, the beret is gone, but the pipe remains, the meerschaum lining of its bowl burned a deep amber; as he puffs on it, a forefinger locked around the stem, the eyes behind the horn-rimmed glasses narrow with interest when a question is being put to him. He answers—in French—in clear and unambiguous language, perhaps interjecting a mild joke; and although his manner is one of Old World charm (unless he feels his precious time is being imposed on to no good purpose, when he can turn direct and abrupt), he also seems to emanate an aura of intellectual presence not unlike the aura of dramatic presence emanated by a great actor.

Does this sound like the description of a revolutionary? Hardly: the famous Swiss psychologist Jean Piaget appears, in person, more like a benign if startlingly percipient paterfamilias; and indeed, he is the father of three grown children. (More significantly, he possesses a remarkable degree of empathy for children and ability to communicate with them—qualities that have helped him very considerably in his work.) Yet the findings he has gleaned, and the theory he has constructed after more than forty years of studying the development of intelligence, are effecting a veritable Copernican revolution in our understanding of the growth and functioning of the human mind.

Jean Piaget showed his scientific promise early: at ten, he observed a rare part-albino sparrow and wrote a note about it, which he submitted to a scientific journal. The journal published the note—the first of the vast number of articles and more than thirty books Piaget has authored and seen into print. Soon after, he became an apprentice of the curator of the museum in his native town of Neuchâtel. The curator, a biologist, had a fine collection of mollusks. Piaget began to observe mollusks on his own and again published his findings in Swiss scientific journals. By the time he was sixteen he had quite a respectable bibliography; indeed, so respectable that he was offered, sight unseen, the post of curator of the mollusk collection at the museum in Geneva—an offer he had to turn down because he was still in high school.

Although biology was Piaget's first love, and the discipline in which he received his doctorate with a thesis on mollusks, he did not find it entirely satisfying. For one thing, he was interested in philosophical questions regarding the problem of "how we know," and his work in biology was not a sufficiently direct route to solving that problem. Then, too, he realized that he lacked the dexterity—and perhaps the stomach—for such activities as dissection.

After receiving his doctorate, Piaget tried out a number of occupations that he hoped might prove better suited to his talents and interests. He flirted with psychoanalysis and spent six months at the Burghölzli Psychiatric Clinic in Zurich (where Jung once worked). While Piaget was intrigued by Freudian theory (he presented a paper on dreams at a conference that Freud attended), clinical practice had little appeal for him. After this he went to Paris, where he worked at the school in which Alfred Binet had originated the intelligence test. It was while testing children in Binet's laboratory school that Piaget discovered—or invented—his own scientific discipline.

Piaget found that in administering mental tests to children he could not only combine his biological and philosophical interests but could perform experiments that required little in the way of dexterity. The child is, first of all, a growing organism to whom all the principles of biological development apply. He is a thinking organism, who comes to know, in one way or another, about the social and physical reality within which he functions. By testing the child's understanding of the physical, biological, and social worlds at successive age levels, Piaget hoped to find an answer to the question of how we acquire knowledge. In effect Piaget had created an experimental philosophy that sought to answer philosophical questions by putting them to empirical test. He called this new discipline genetic epistemology.

To put Piaget's enterprise in perspective we must know something about the scientific *Zeitgeist*, or spirit of the times. In the twenties and early thirties social science in America and England had become rigidly environmentalist: in contrast to the theories of hereditary taint that still predominated in European discussions of mental retardation and criminal behavior, the environmentalists stressed the brutal conditions under which criminals and familial retardates were reared.

In America the emphasis on environmental factors was reflected in an almost total preoccupation with learning, which psychologists defined as the modification of behavior due to experience. Psychology textbooks spent pages laying to rest the ghost of so-called instincts, the innate behavior patterns. While animals had instincts, the student was taught, man for the most part did not: even maturation, conceived as the unfolding of genetically determined (in part, at least) behavior patterns, was regarded as unscientific. Not surprisingly, maturationists such as Arnold Gesell, whose careful observations were a model of good descriptive psychology, fell into scientific disrepute.

In sharp contrast to the environmentalism of American social science was the nativism of European psychology. This nativism, a belief in the hereditary determination of personal and social traits, was later subverted

into the racist doctrines of Nazism. From Europe had come Gestalt psychology, which suggested that experience never came to us "in the raw" but always in an organized fashion; that, for example, notes played in sequence are heard as a melody and not just as a sequence of notes. Such organizations were, according to Gestalt psychologists, determined by innate organizers or mental structures. When many Gestalt psychologists immigrated to America to escape Hitler, they ran head on into environmentalism. And the winds of the nature-nurture controversy blew hot and strong.

Piaget declined to take sides; he saw himself as "the man in the middle," the man who viewed nature and nurture as always relative to each other. His early experiments with mollusks had suggested that the influences of environment and heredity were reciprocal, with neither absolute, and his first observations of children convinced him that this relativism of nature and nurture extended to the development of human intelligence as well. He discovered that children harbored notions concerning nature and the physical world that they had neither inherited nor learned in the classic sense. He found, for example, that young children believed the moon followed them when they went for a walk at night, that dreams came in through the window while they were asleep, and that anything that moved, including waves and wind-blown curtains, was alive.

Where did such ideas come from? They were not inborn; because something that is inborn does not change and most children give up these ideas as they grow older. Likewise, the ideas could not have been learned from adults, because adults do not think in this way and would hardly teach such things to children. And since children everywhere, from completely different backgrounds, harbor such ideas, the ideas could not have been learned.

Piaget's answer to this puzzle was that the child's ideas about the world were "constructions" that involved both mental structures and experience. Like the Gestalt psychologists, Piaget argued that experience does not come to us raw but is organized by our intelligence. His advance over Gestalt psychology was his argument that the organizing structures are not fixed at birth but develop in a regular sequence of stages related to age. While the changes with age imply the role of experience, their orderliness reflects an interaction between nature and nurture. Piaget set out to discover the principles that govern this interaction.

One of the developmental principles revealed by Piaget's work is that mental growth occurs by integration and substitution and not solely by the addition of new facts. The child of three or four already has an elementary concept of quantity: confronted with two identical glasses of orangeade filled to the same level, he would say that both had the "same to drink." But if the orangeade from one glass were poured into a tall, narrow beaker while he looked on, the child would say, Piaget found, that the tall glass had "more to drink" than the shorter one. Not until about six or seven do most children understand that changing the shape of a quantity does not change its amount. The young child has a concept of quantity, but it is clearly a different concept from the one held by older children and adults: he thinks the amount of liquid can be gauged by its level without taking its width into account. Older children and adults, however, assess liquid quantities by taking both height and width into consideration.

This is mental growth by integration, wherein a new, higher-level idea (amount is determined by height and width) is formed by the integration of two lower-level ideas (amount is determined by height *or* width). It suggests that mental growth is an expanding upward spiral in which the same problems are attacked at successive age levels but are resolved more completely and more successfully at each higher level. Something similar occurs in science generally. The ancient Greeks talked about "atoms," but their concept of atoms was quite different from that held by modern physicists; even so, some of their ideas about atoms coincide, or are integrated, with our own. Growth by integration means the progression from a primitive to a more mature, differentiated, and elaborate concept.

The principle growth by integration is particularly important in its application to education. By and large, our educational system is concerned with growth by the accretion of facts. Now, certain facts—the capital of Greece, the number of days in a week, and the meaning of the abbreviation C.O.D.—are either right or wrong: the capital of Greece is Athens, and no other answer is correct. But a child who thinks that quantity is gauged by one dimension alone does not have a "wrong" idea; he simply has a *different* one from ours. Piaget's work indicates that we must expand our view of knowledge to include not only facts that are correct but also concepts that may be the same as or different from ours without being either right or wrong.

Mental growth also occurs by substitution. In areas such as moral judgment and ideas about nature, the primitive ideas held by young children are simply replaced by more mature ideas as the children grow older. Piaget found, for example, that young children judge a person according to the amount of damage he does rather than on the basis of his intentions. He told children two stories: in the first a child helping his mother to set the table trips and breaks twelve cups, and in the second a child who has been forbidden to climb up to a cupboard for jam does so and breaks one cup. Young children feel that the first child needs punishing the most since he broke twelve cups, while older children tend to find the second child more worthy of punishment because he intentionally disobeyed his mother.

Piaget obtained similar results when he queried children about lying. Again, children of different age groups were presented with two stories. In one story a boy told his mother he had seen a pink elephant dancing in the street to the tune of an organ played by a monkey. In the other a boy reported that he had received a grade of one hundred on an arithmetic test when in fact he had received only a sixty-five. Young children said the child who told the elephant story was more to be blamed because his lie was "bigger." Older children said that the boy who told the story about the elephant had meant to amuse his mother and was therefore less culpable than the one who said he had received a perfect grade in order consciously to deceive his mother.

In these studies and in many others like them, Piaget found that young children have an "objective morality," based on the amount of damage done, whereas older children have a "subjective morality," based on the subject's intentions. This developmental progression from objective to subjective morality is, however, only relative, and we adults often slip into an objective morality—particularly when we are dealing with children. A child, for example, who deliberately smashes an old record of no special interest is likely to receive a milder verbal blast than one who accidentally breaks his father's favorite record. In such cases we revert to judging the "badness" of an action in terms of material damage done rather than in terms of intention. In mental growth by substitution, therefore, there is always the possibility of a reversion to an earlier level of mental functioning.

Piaget's initial findings regarding the evolution of mental growth and the principles of integration and substitution were not well received. His method of talking to children about a particular topic was widely criticized, his results were questioned, and his interpretations were ridiculed and dismissed. In America as recently as ten years ago Piaget was seen as a quaint old man who sat around on the shores of Swiss lakes talking to children about nature and the physical world.

In spite of the unfavorable reaction, Piaget persevered, extending his investigations to the study of infants—particularly his own three children—and adolescents. In this work, carried out during the 1930's and 1940's, he concerned himself mainly with the phenomena of "conservation," which in Piaget's vocabulary refers to the child's awareness that a quantity remains the same—that is, the quantity is "conserved"—despite a change in its appearance. In the example of the orangeade being poured from one size container into another, a child who recognizes that the quantity stays the same is said to "have" conservation.

What Piaget discovered during this second phase of his work was the widespread absence of quantity conservation in young children. Before the age of five or six, for example, most children believe that six pennies in a pile are fewer than six in a row, and that if one of two identical clay balls is rolled into a sausage, it increases in mass, weight, and volume. By seven or eight, however, children recognize that a change in appearance does not mean a change in amount. Piaget argued that the child's discovery of conservation in the realm of quantity was the reflection of new mental structures and new modes of organizing experience.

During this period a second principle of mental growth became evident; namely, that the emergence of new mental structures for organizing experience is accompanied by an increased ability to distinguish between appearance and reality, between how things look and how they really are. Once again, this principle of mental growth parallels what has occurred in history. Early man believed that the sun circled the earth and that the earth was flat. Such ideas come from an uncritical acceptance of information received through the senses: the sun does appear to move around the earth, and the land about us does appear flat.

We overcome the deceptive appearances of things with the aid of reason. It is the appearance of reasoning in the child that enables him to discover the conservation of quantity, number, and length. To demonstrate that reasoning is, in fact, involved, consider the following situation. Suppose an adult is presented with a clay ball and a clay sausage and asked whether they are the same weight. Without actually weighing the two objects he would have no way of knowing, but if he knew that the clay sausage had previously been a ball, and that as a ball it had been equal in weight to the other clay ball, the weight equality of ball and sausage could easily be deduced.

It is with the emergence of elementary reasoning structures, at about six or seven, that the child begins to distinguish between how things look and how they really are. But at this age his ability is limited to material things—the conservation of the length of sticks, the number of elements in a group, or the amount of liquid poured from one container into another. There remains another level at which the distinction between appearance and reality is still closed to the child; that is, the symbolic level—the level of metaphor, illusion, and double-entendre.

Piaget found that it is only during adolescence that human beings become capable of making such distinctions. For example, children cannot grasp the satirical significance of political cartoons or the metaphorical significance of proverbs; only during adolescence, when still more new mental structures and mental organizations appear, do young people begin to appreciate the double meanings, the social significance, of books like *Gulliver's Travels* and *Alice in Wonderland.* Adolescents can also use irony and metaphor to belittle their enemies; they become skilled in making the apparently innocent yet cutting remark.

Thus Piaget's findings demonstrated two levels of distinction between appearance and reality: the concrete level,

at which reason enables the child to discover that quantities do not change despite a change in appearance, and the symbolic level, at which adolescents discover the multifaceted meanings implicit in words and learn that the apparent meaning of words may mask their real meaning and intent. Although much of this research was done in the thirties and forties, it did not become widely known until the late 1950's, when the *Zeitgeist* once again affected the reception of Piaget's work.

Even before sputnik, critics of education in America had begun to demand that educators abandon the goal of achieving the "personal adjustment of the whole child" and devote themselves to teaching children "how to think." This new emphasis led to a search for new curricula and curricular materials. When curriculum builders turned to psychology for information about how the mind grows and how children think, they found that the psychologists had little to offer. In their zeal to keep psychology a strictly experimental science, psychological researchers had performed most of their work on learning with lower organisms, and the results were hardly applicable to the kind of learning that children in school were engaged in.

It was through the efforts of men like Jerome Bruner at Harvard, and the late David Rapaport at the Austen Riggs Center in Stockbridge, Massachusetts, that Piaget's work first came to the attention of curriculum builders. In Piaget's books educators read about the child's view of space, time, and numbers, about children's reasoning processes and their ability to classify and relate things. The curriculum planners discovered that Piaget had been studying how *children* learn, and that he had come to define learning in a new way, a way they tried to incorporate (not always successfully) into their new curricula.

Traditional psychology had always defined learning as "the modification of behavior as the result of experience." Such a definition makes the learner a more-or-less passive recipient of environmental happenings. While this may be true of rats, it is certainly not true of children. Piaget turned the definition around and spoke of learning as, in part, "the modification of experience as the result of behavior." He argued that the child's actions upon the world changed the nature of his experience. This is another way of stating the relativity of nature and nurture. If experience is always a product (to some extent) of the child's behavior, any modification of behavior as a result of experience must be relative to the child's actions. Human experience, then, must be relative to human action.

This theory has been one of the most difficult for American educators and psychologists to accept, even those who are sympathetic to Piaget's views. It has been difficult to accept because of a lack of familiarity with Piaget's third principle of mental growth. Our tradition has been one of empiricism, which assumes a complete separation of mind and reality. Implicit in empiricism is a kind of "copy" theory of learning that says that our minds simply copy what exists in the outside world, much as a photograph copies the light patterns conveyed to the exposed film. Piaget argues that the mind never copies reality but instead organizes it and transforms it, reality, in and of itself, being—as Kant made clear—unknowable.

Everyone has had the experience of looking at the clouds drifting by and seeing in them castles, horses, airplanes, and the like. Since different people see different things in the same cloud pattern, it is apparent that what is being seen is a product of the individual's own organizing processes. This is the principle upon which the Rorschach inkblot test is based: inkblots provide an ambiguous configuration, which allows individuals to reveal the organizing patterns of their minds.

Now, a characteristic of all such organizing activities is that the person is unaware of his own part in constructing what he sees; this is Piaget's third principle of mental growth. Many a patient confronting an inkblot has accused the examiner of showing him "dirty pictures." What Piaget has shown is that our role in organizing experience is much larger than we realize, and is a major cause of misunderstanding between adults and children. When an adult watches a quantity of liquid being poured from a short, wide container into a tall, narrow one, his organizing and deductive processes are so rapid that he literally *sees* that the quantity in the taller container is the same as it was before. The equality seems to be a property of the liquid, like its fluidity or its wetness, and to have nothing to do with his own mental processes. Yet the difficulty this problem presents to the young child shows that this awareness arises from the reasoning ability of the subject, and not from perceptible attributes of the object.

The adult actually sees the world around him in a very different way than a child who does not have conservation, but the adult is not aware of this. It is because we adults take for granted that children see the world as we do that we are often upset and angered by their behavior, and it is also the reason children often find adults unpredictable and incomprehensible. The same holds true in education, and teachers often make erroneous assumptions about how children view the world.

Piaget's fourth principle of mental growth, which is just coming to be appreciated in America, concerns motivation. On the basis of their work in animal learning, in which external rewards are required to train an animal in certain behaviors, psychologists assumed that the same held true for all learning. One of the main reasons grades are used in school, for example, is that they provide children with rewards for achievement. Children, particularly middle-class children, work hard to get good grades.

Not all learning has to be rewarded from without, however, and the structures Piaget describes lead to a kind of spontaneous learning that does not require any special rewards. If, on a certain day, one asks an adult what he has done since breakfast that morning, he will be able to give a fairly good account of his activities: though he does not set out to "remember" his activities as he might, say, a poem, and though no rewards are provided for remembering what has occurred, learning has obviously been going on. It is, however, a different kind of learning than memorizing a poem or the date of a historical incident.

Three aspects of this kind of learning should be noted. First, it involves the organization of material into a spatial or temporal or causal sequence. Second, the person is not conscious of the fact that he is processing or organizing the material. Third, and most important, such learning always involves the subject's own activity. These features of what might be called "structural learning" are present not only when we recalled how we spent the morning but also in the child's attainment of the conservation of quantity and number and in his understanding of classes and logical relations. In each case the learning involves some logical ordering of information, is unconscious as far as the learner is concerned, and involves the learner's own activities, including mental activities such as reasoning.

Accordingly, it is not really appropriate to ask "why" a child attains conservation in the same way that we might ask "why" he knocked his brother down. The latter question presupposes conscious intention and demands an "answer" in dynamic terms: the reply could be "his brother hit him," or "his brother took his toy," or something to that effect. It is an entirely different matter to ask why a child has *not* attained conservation. The question is analogous to asking "why doesn't a fish walk?" In both cases an intentional answer is inappropriate. To say that the child does not attain conservation because he is too lazy or too busy with other things is like saying that a fish doesn't walk because it prefers to swim. For both questions the appropriate answer is one of structure and function.

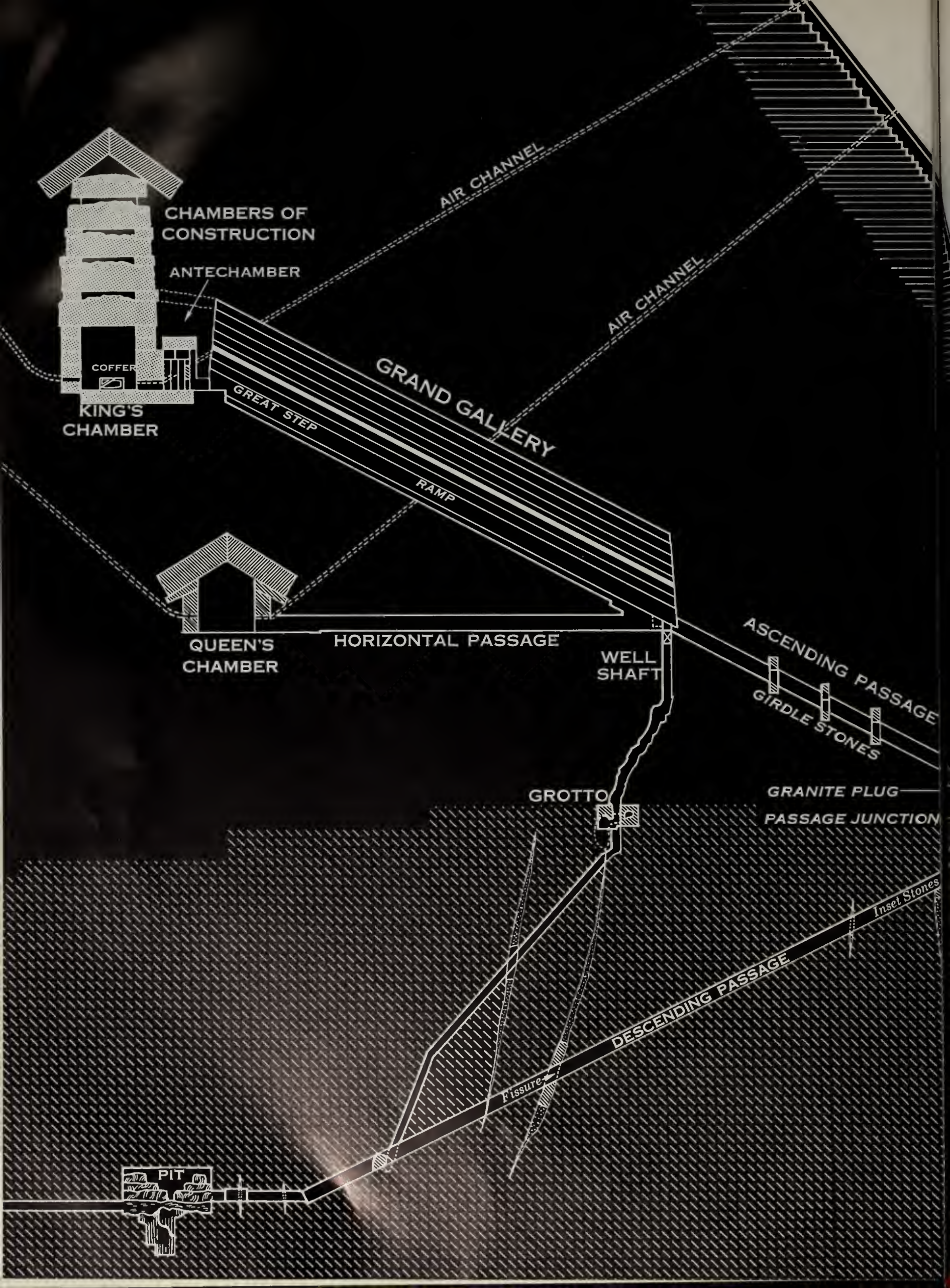
To explain why a fish swims you must describe the natural history of the fish, the structure and shape of its body and gills, and the functioning of its breathing apparatus. Likewise, to explain why a child attains conservation, his mental structures and their functions must be described. If a fish cannot walk, it is because it lacks the necessary physical structures, and if a child has not attained conservation, then, other things being equal, he must lack the necessary mental structures. Conservation is thus as natural a function of elementary reasoning abilities as swimming is a natural function of the fish's organs and body conformation.

It is because Piaget stresses this sort of "motivation" that he has spent a good part of his career in formulating in more specific terms the mental structures that characterize the development of intelligence from infancy through adolescence. Piaget has described four stages of mental growth, which he summarizes in terms of the major cognitive task each seems designed to accomplish. During the first two years of life (the sensory-motor period) the mental structures are mainly concerned with the mastery of concrete objects. The second stage, from about two to six or seven (the preoperational period), concerns the mastery of symbols, including those that occur in language, fantasy, play, and dreams. During the third stage, from about six or seven to about twelve (the concrete operational period), children learn the mastery of classes, relations, and numbers and how to reason about them. Finally, from about twelve to fifteen (the formal operational period), young people are concerned with the mastery of thought and can think about their own and other people's thinking.

These stages of mental growth, and the principles manifested in their development, are gradually impressing themselves on American psychology and education but not always in undistorted form. Now that Piaget's name has become well known, it is often invoked in support of many viewpoints and practices that are in opposition to the real direction of Piaget's work. Piaget, for example, is cited as an authority by those who advocate formal preschool instruction for young children *and* by those who argue for the value of play and informal methods of education for young children. Piaget is both criticized for views he does not hold and praised for positions he has never taken.

In 1969 the American Psychological Association presented Piaget with an award for his distinguished contribution to psychology. Despite this formal recognition, Piaget retains the ambiguous position of the intellectual innovator. It will probably be decades before his ideas become firmly rooted within the canons of psychology, and then Piaget, like Freud, will be dismissed because the valuable part of his work will have become part of the established modes of psychological thought. Piaget knows this, but he has always had the indifference to fame, the independence of mind, the steadfastness of purpose, and the dedication to truth that mark the true intellectual innovator. And though Piaget has not always been treated generously by his colleagues, he retains his sense of humor, his pleasure in work, his wonder at the world, and his delight in people. Not the least of Piaget's contributions is the example he provides to his students and, indeed, to all young people, of a life well lived in the service of science and mankind.

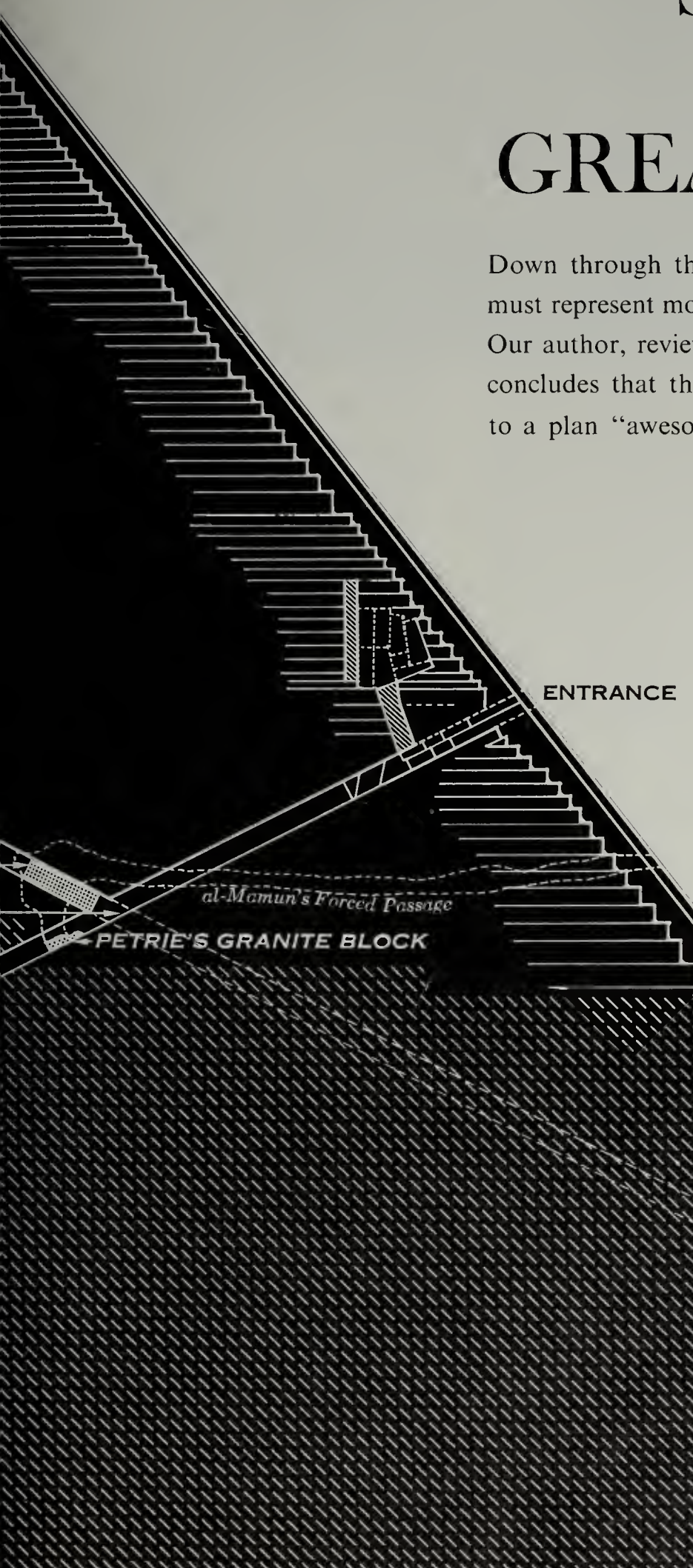
David Elkind spent a year at Jean Piaget's Institute for Educational Science in Geneva before he joined the faculty of the University of Rochester, New York, in 1966, as a professor of psychology.


CHAMBERS OF CONSTRUCTION
ANTECHAMBER
AIR CHANNEL
AIR CHANNEL
COFFER
KING'S CHAMBER
GREAT STEP
GRAND GALLERY
RAMP
QUEEN'S CHAMBER
HORIZONTAL PASSAGE
WELL SHAFT
ASCENDING PASSAGE
GIRDLE STONES
GROTTO
GRANITE PLUG
PASSAGE JUNCTION
Inset Stones
DESCENDING PASSAGE
Fissure
PIT

SECRETS
OF THE
GREAT PYRAMID

Down through the ages, men have suspected that this colossus must represent more than simply the tomb of the Pharaoh Cheops. Our author, reviewing the suggestions that have been advanced, concludes that the Egyptians built the immense pile according to a plan "awesome in its audacity, yet breath-takingly simple."

By PETER TOMPKINS



Like several earlier writers, Peter Tompkins views the Great Pyramid as an observatory. Its north side, on the right of this cross section, is aligned almost perfectly east and west. Tompkins points out that observers in the Grand Gallery could, by looking down the ascending passage to a reflecting pool placed at the passage junction, note the exact moment that a star made its transit, and so could, over the years, chart the skies.

West of Cairo, near the village of Giza, stands a small desert plateau. In the opinion of the dean of scientific archaeologists, Sir Flinders Petrie, it "may well claim to be the most remarkable piece of ground in the world." "There," Petrie tells us, "may be seen the very beginnings of architecture, the most enormous piles of buildings ever raised, the most accurate construction known, the finest masonry, and the employment of the most ingenious tools." He is referring to an extraordinary trio of structures: the Great Pyramid attributed to Cheops, which rises 485 feet above a 13-acre base, a slightly smaller pyramid attributed to a successor, Chephren, and a still smaller one attributed to another successor, Mykerinos. (Cheops, Chephren, and Mykerinos all reigned over Egypt as members of the Fourth Dynasty, in the third millennium before Christ.)

Egyptologists believe that these pyramids, as well as some seventy others in the Nile valley between the 29th and 30th parallels, were intended to serve as tombs for the pharaohs who had them built. Whether or not this was their function, successive generations of men, gazing on their awesome massiveness, have sensed that they must have had some other purpose as well. This is especially true in the case of the Great Pyramid, the largest and most impressive of all.

What was the Great Pyramid's secret? Down through the centuries the speculations advanced on this score have mostly mirrored the preoccupations of the speculators: scientific men have seen in the structure evidence of a remarkable grasp of engineering on the part of its builders, while men of faith have found in it confirmation of Biblical prophecies. And so on.

In the nineteenth century, when Darwin's theory of evolution set science on a collision course with established religion, speculation about the purpose of the Great Pyramid increased. By the end of the century so many farfetched explanations had been put forward, based for the most part on dubious mathematical calculations, that a kind of revulsion set in. The educated public turned from the subject in disgust, leaving it almost exclusively to the Sunday supplements.

Nevertheless, some scholars continued quietly to study the Great Pyramid in ever finer detail, measuring, weighing, testing, and subjecting their data to minute and painstaking analysis. Year after year the work went on, with the corpus of knowledge slowly growing. Gradually, a new concept of the structure came into being: the numerous correspondences in the Great Pyramid's location, orientation, and dimensions — correspondences that had intrigued men for centuries and inspired countless theories — were not, after all, fortuitous coincidences. They were, in fact, the results of planning — planning that was awesome in its audacity, yet breath-takingly simple.

It is now clear that the Great Pyramid is both a scale model of the Northern Hemisphere and an astronomical observatory and that the men who designed it were sufficiently versed in astronomy, mathematics, and geography to have known that the world was round, to have calculated its circumference and polar axis, and to have been aware that it rotates once a day on an axis tilted about 23-1/2 degrees and revolves around the sun once in a year of 365 and a fraction days. The designers must also have known that the constellations of the heavens appear to "slip backward" (the precession of the equinoxes) approximately every 2,200 years, in a grand cycle of about 26,000 years.

Needless to say, the implications of this new view of the early Egyptians are far from being accepted by the Egyptological establishment. Unfortunately, no description of the pyramid or of its construction has survived in the Egyptian texts, and many descriptions by classical authors have been lost or survive only in fragments. Herodotus, who saw the pyramid in about 440 B.C., described it as being of "polished and most accurately jointed stones." About four hundred years later Diodorus Siculus, a Greek historian, reported that the pyramid's 22 acres of casing stones were "not removed from their original positions." The Roman historian Pliny gives a report of natives scrambling up the polished sides.

After the Romans little more was heard of the Great Pyramid until the revival of learning by Moslem Arabs. When the successors of Mohammed conquered Egypt in the beginning of the seventh century, they were parched for knowledge, especially of astronomy and geography. They scoured the Middle East for scientific manuscripts by Greek, Roman, and Indian authors, sometimes paying for translations by the weight of the manuscript in gold. At the beginning of the ninth century, when the young caliph al-Mamun succeeded his father, Harun al-Rashid, of *Arabian Nights* fame, he commissioned the translation of Ptolemy's *Almagest*, which contained astronomical and geographic data, including the earliest star catalogue to have survived.

One day, saying that Aristotle had appeared to him in a dream, al-Mamun ordered his astronomers and geographers to compute an actual degree of latitude and lay it out on the plain north of Baghdad for the purpose of establishing the circumference of the earth. The men obtained a degree of 56-2/3 miles, a little short of the mark. But as these Arab geodesists did not know which of the varying cubits and stadia mentioned by the classical authors to apply, they had no way of confirming their data.

According to legend, the Great Pyramid of Cheops contained secrets of advanced mathematics, astronomy, and geography that had been evolved by antediluvian kings and stored there for safekeeping, together with maps of the stars and such fabulous materials as glass that would bend without breaking and arms that would not rust. Eager to possess this knowledge, al-Mamun resolved to search the pyramid. He ar-

DIAGRAM BY CAL SACKS, AFTER DRAWING IN DAVID DAVIDSON AND H. ALDERSMITH, *The Great Pyramid, Its Divine Message*, LONDON, 1924

At the beginning of the nineteenth century, a thousand years after al-Mamun first forced his way into the Great Pyramid (left), heaps of rubble still covered the base, making it impossible to take exact measurements. The pyramid to the right is that of Chephren.

rived on the scene with a small army of engineers and laborers, who carefully inspected the entire north side without finding the door that Strabo had mentioned as being there, part way up. In a quandary, the young caliph ordered his men to bore straight into the solid stonework. When their chisels blunted, the Arabs lighted fires and doused the heated blocks with vinegar until they cracked enough to be dislodged with battering-rams.

Al-Mamun's men bored a dusty passage, hot and cramped, for almost 100 feet, and were on the verge of giving up when one of the forward workers heard something crash somewhere within the depths of the pyramid toward the east. Al-Mamun ordered the digging continued in an easterly direction, and the Arabs soon broke into a narrow descending passage a little less than 4 by 4 feet, which sloped at an angle of about 26 degrees down more than 300 feet to a pit carved into the solid rock, approximately 600 feet beneath the apex of the building.

The ceiling and walls of the pit were rough and uneven, and a shallow well in the equally rough floor was empty. A narrow passage opposite the entrance led to a dead end. Smoky lettering on the ceiling indicated that the pit might have been visited in classical times, but there was nothing of value or interest.

Just below the point at which the Arabs had broken into the descending passage, they found what appeared to have caused the crash: a limestone slab designed to fit into the ceiling to hide the end of a granite plug that seemed to block a passage ascending into the body of the pyramid.

Unable to chip or dislodge this hard granite plug, the Arabs cut a hole in the softer limestone around it, only to find two more granite plugs for a length of 16 feet, followed by an apparently interminable series of limestone plugs. These the Arabs were able to break up one by one and remove, until they revealed a passage, again less than 4 by 4 feet, that rose at a complementary angle of about 26 degrees, ascending into the mysterious bowels of the pyramid. Holding their torches low, the Arabs crawled 150 feet, until they were able to stand upright and see that ahead of them stretched another low horizontal passage. At the end of it they found a chamber with a gabled roof, later named the Queen's Chamber because of the Arab custom of burying women in gabled tombs.

Retracing their steps to the top of the ascending passage, the Arabs noted joist holes in the side walls, which indicated that the passage had once continued over a flooring into the heart of the pyramid. Raising their torches, they climbed a short perpendicular wall and saw they were at the bottom of an impressive gallery 28 feet high and 6 feet wide, with a narrow ramp along each side. In the ramps were twenty-eight notches, evenly spaced, which the Arabs used as footholds to climb another 153 feet to the upper end of the gallery, where an 8-foot platform was raised 3 feet above the ramps.

Beyond the platform another low passage led through a portcullised antechamber into an extraordinary room entirely walled, floored, and ceilinged with dark red granite, so highly polished that it reflected their torches like a mirror. In the room stood a large brown granite coffer, which gave off an eerie sound when struck. That was all. No treasure, no mysterious glass that bent, no unrusted arms.

Disappointed, al-Mamun is reputed to have hidden a sum of money just sufficient to reward his workers, and attributed the cache to Allah. But the charm had gone out of the pyramid, and the caliph returned to Baghdad.

The last description of the Great

At left, Gratien Le Pere, a savant with Napoleon in Egypt in 1799, stands at the head of the Grand Gallery, inside the Great Pyramid, and watches his colleague Coutelle, at the top of the ladder, enter a passageway.

Pyramid in its pristine state comes from an Arab historian named Abd al-Latif, who in the thirteenth century compared it to a great female breast rising from the bosom of Egypt. When, subsequently, an earthquake demolished most of Cairo, the city's inhabitants dismantled the pyramid's limestone carapace and used the blocks to repair the damage. Stripped of its mantle, the core masonry appeared as a series of gradually ascending and receding steps of less pure nummulitic limestone. Chips and debris left by the plunderers piled up as high as 50 feet around the base of the pyramid, obliterating al-Mamun's forced entrance; but the dismantling laid bare the small original entrance, ten courses, or layers, higher than al-Mamun's and 24 feet farther east, impressively gabled with huge monoliths of limestone. Bats swarmed in and out of the opening.

Perhaps because of these bats, the legend grew that the pyramid was haunted by a naked woman with large teeth who seduced her victims and drove them mad. Not until the Renaissance dispelled some of the hobgoblins of the Middle Ages did the Great Pyramid become of anything but superstitious interest to Europeans.

The first serious modern investigator of the pyramid was a mathematician named John Greaves, who was to become a professor of astronomony at Oxford during the reign of Charles I. In the questing spirit of his time, Greaves traveled afar, making measurements and calculations everywhere he went, in the hope of finding a universal unit of measure. (In Rome he was to come upon an ancient measuring rod that he found to be shorter than an English foot by just twenty-eight thousandths, or twenty-four twenty-fifths of a Greek foot, the oldest unit of measure then known.) In 1637, after a trip through the Middle East collecting ancient manuscripts, he set out to take the measurements of the Great Pyramid.

Greaves arrived on the Giza Plateau with an Ottoman janissary, who promptly refused, out of terror, to enter the pyramid. Climbing a 38-foot pile of rubble, the Englishman located the original entrance and gingerly lowered himself into it. He was greeted by a storm of bats "so ugly and of so large a size (exceeding a foot in length)" that he scrambled out again; but then, nerving himself to the task, he plunged once more into the descending passage.

Inside, Greaves fired his musket to test the theory, reported by Plutarch many centuries earlier, that making a loud noise within the Great Pyramid produced an echo. (It did.) Next, he methodically set about measuring everything he could reach with his 10-foot measuring rod. This rod, finely divided into ten thousand parts, was based on the standard English foot in the Guildhall at London.

Outside, Greaves climbed to the top of the pyramid, from which he could admire the minarets of Cairo, the range of Mokattam hills across the Nile (where most of the limestone for the pyramid had been quarried), and the distant silhouettes of the pyramids of Sakkara, Abusir, and Dashur to the south.

Greaves counted the stone courses of Cheops's pyramid as 207, for a vertical height of 481 feet; this was a few feet less than the correct figure. But the debris piled around the base prevented him from establishing exactly where it lay on bedrock; hence his estimate of the length of a side at the base was 70 feet too short.

Greaves's measurement of the interior of the pyramid was the first real step toward a scientific analysis of the structure's dimensions. From his measurements Sir Isaac Newton concluded that the King's Chamber, and therefore the pyramid itself, had been built on the basis of a cubit he called "pro-

fane," the equivalent of 20.63 British inches.* This made the King's Chamber exactly 20 cubits long by 10 wide.

Newton was eager to obtain the external measurements of the pyramid as well, in order to validate his general theory of gravitation. Agatharchides of Cnidus, a peripatetic philosopher who wrote on the geography of the Middle East in the middle of the second century B.C., had indicated that the base of the Great Pyramid—that is, one side at the base—was supposed to represent one-eighth of a minute of a degree of longitude†; if this were so, and if the Egyptian builders had done their job correctly, the length of one of the pyramid's sides could, by simple arithmetic, yield the circumference of the earth. And Newton needed to know that figure to prove his theory.

Unfortunately, Greaves's failure to reach the actual base of the pyramid caused Newton's figure for the earth's circumference to be short, so Newton put off testing his theory until 1671, when the Frenchman Jean Picard triangulated a degree of latitude between Amiens and Malvoisine by means of wooden rods and a theodolite. Newton then announced his theory that all bodies in this universe attract one another in proportion to the product of their mass and inversely as the square of their distance apart.

But in all this excitement the pyramid's geodetic values were forgotten. The sands of the desert encroached on the base, nearly obliterating the nearby Sphinx. Travel to the Giza Plateau became dangerous, even if the traveler was accompanied by janissaries.

Almost a century passed before the next notable discovery on the Giza Plateau. In 1765 the British consul in Algeria, Nathaniel Davison, made the second of his two visits to the Great Pyramid, which he found to be filled,

*Newton also postulated a longer cubit, of about 25 inches, derived from the circumference of the pillars of the Temple at Jerusalem, which he called "sacred," and which he suspected might also be incorporated in the pyramid's design. He hoped that further measurement of ancient monuments might bring it to light.

†According to Professor Livio Catullo Stecchini, whose work is discussed on pages 47–49.

At right, the scene on the page opposite is visible in the distance. Nearer, at the foot of the Grand Gallery, a turbaned workman extends a hand to a comrade while a French officer behind him starts to climb the slope.

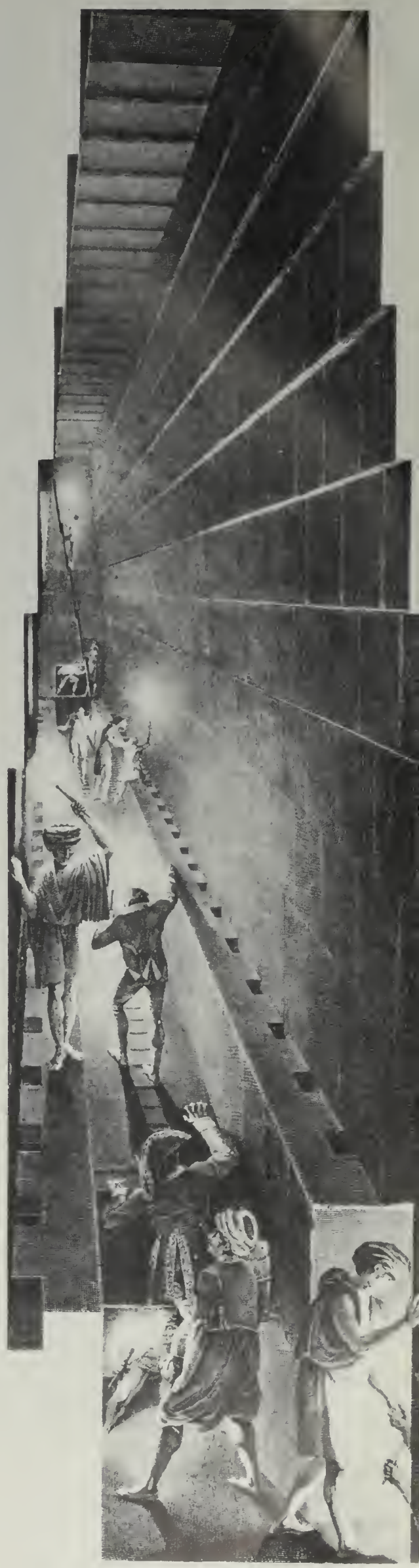
as before, with bats. In the Grand Gallery he noted his voice was answered by an echo somewhere above him.

With a makeshift 30-foot ladder Davison found a small hole 2 feet square where the east wall joined the ceiling. Though it was filled with 16 inches of bat dung, Davison managed to crawl 25 feet to a room so low that he could not stand in it, yet every bit as long and as wide as the King's Chamber directly below. Beneath the bat dung Davison found that the floor was made of nine granite beams that formed the ceiling of the King's Chamber. Above him the ceiling was similarly constructed of eight more beams. But he saw nothing else of interest—no inscriptions, no sign of any further passages. Davison's reward was to have the chamber named in his honor.

The next men to investigate the pyramids thoroughly were French. In 1799 Napoleon sailed for Egypt with an invading army and a corps of savants, whose mission was to observe and record everything they found. At the Great Pyramid they employed a gang of Turks to clear the rubble from the northeast and northwest corners, where they discovered two shallow socket holes dug into the bedrock on which the cornerstones had rested.

This enabled a young Frenchman with a fine classical and scientific background, Edmé François Jomard, to measure up and down the rubble along the north side and obtain a better figure for the length of that base, 230.902 new French meters. Jomard also climbed to the top of the pyramid and calculated its height at 144.194 meters. By elementary trigonometry this gave a slope angle of 51° 19′ 4″ and an apothem, or slant height, of 184.722 meters.

Jomard knew that the stadium of the Alexandrian Greeks was the equiv-



alent of 185 French meters, less than 30 centimeters different from the figure he had worked out for the length of the pyramid's apothem. He also knew that, according to some classical sources, a stadium was supposed to be 1/600 of a geographic degree, and he had no difficulty in determining that a degree of latitude at the mean latitude of Egypt was 110,827.68 meters. Dividing this by 600 gave him 184.712 meters, or within 10 millimeters of his value for the apothem.

Reinforcing this discovery of Jomard's was the testimony of several Greek authors that the perimeter of the base of the pyramid was intended to measure half a minute of longitude; in other words, that 480 times an average side of the pyramid was equal to a geographic degree. Jomard divided his 110,827.68-meter mean-latitude degree by 480 and got 230.8 meters, almost within 10 centimeters of his measured length of the base.

Herodotus had noted that 400 Egyptian cubits made a stadium of 600 feet. Dividing the apothem of the pyramid by 400, Jomard obtained a length for a cubit of .462 meter. To his amazement, this turned out to be the common cubit used by the Egyptians of his own time. According to other Greek sources, the average base line of the pyramid was 500 cubits long. Multiplying .462 meter by 500, Jomard got 231 meters, which was also within 10 centimeters of what he had measured for the base.

Jomard's exciting theory impressed some of his colleagues, but not two of them, Gratien Le Pere and Jean-Marie Joseph Coutelle, who had measured the perimeter and found the average side to be 2 meters longer. They had also measured the height, and had calculated an angle of slope higher than Jomard's, with a longer apothem.

In vain, Jomard argued that he had found an even more surprising coincidence in that 1/400 of his dimension for the base of the pyramid gave a figure of 5775 meter, which was exactly the length of a longer contemporary Egyptian unit of measure called a *pyk belady*. Jomard's colleagues insisted that there was no evidence for such units.

Unperturbed, Jomard continued his observations. It seemed to him that from the bottom of the descending passage the ancients might have been able to observe the transit of some circumpolar star and thus establish true north. He also suggested that the King's Chamber, with its empty sarcophagus, might have been not a tomb but a metric construction designed to embody a system of measures. To the end Jomard remained convinced that the builders of the pyramid had possessed the necessary astronomical know-how to measure a geographic degree and the circumference of the earth, and had immortalized their advanced geography and geodesy in the geometry of the Great Pyramid.

Jomard pointed out that Herodotus, Plato, Diodorus, and many others had named Egypt as the birthplace of geometry, and that, according to tradition, Pythagoras had learned from the Egyptians his theorems of geometry, his art of calculation, and his doctrine of metempsychosis.

With Wellington's victory at Waterloo the efforts of the French savants at the pyramid were soon forgotten, and the socket holes they had discovered were once more filled with sand. But one of Wellington's officers, Colonel Richard Howard-Vyse, took a pleasure trip to Egypt; after dinner in Cairo he rode out to view the pyramids by moonlight from the Mokattam hills across the Nile. Awed by "the remote antiquity and uncertainty of their origin," he decided to explore their interiors.

After paying out considerable sums to native diggers, Howard-Vyse quarreled with his first associate, an Italian sea captain, and then continued the search with the aid of a British engineer, John Shae Perring.

Using gunpowder, they blasted a passage 40 feet up from Davison's chamber and found four similar chambers, each roofed with granite. In the third of these, which Howard-Vyse chauvinistically named for Lord Nelson, the Arab workmen discovered a cartouche with hieroglyphs in red paint daubed on the walls. (Later, deciphering the hieroglyphs as the name Khufu and the number 17, Egyptologists were to conclude that the cartouche had been a quarry mark made during the building of the pyramid, in the seventeenth year of the reign of the pharaoh Khufu—known to the Greeks as Cheops.)

Fired by the prospect of further renown, Howard-Vyse dug through the debris around the base, and there he found some of the first row of casing stones still in place. Two of them were in perfect condition, 4 feet 11 inches high, 12 feet long, and 8 feet 3 inches wide, hewed to the required angle of slope, as correct and true almost as modern work by optical instrument workers. In the words of Howard-Vyse, "the joints were scarcely perceptible, and not wider than the thickness of silver paper."

It was thus possible to reconstruct with greater exactitude the angle on which the pyramid had been built. Together with the length of an average side, which Howard-Vyse found to be shorter than the measurement made by Coutelle and Le Pere, it was possible by trigonometry to obtain a figure for the original apex of the building, and so reconstruct its entire dimensions. The result was a base of 764 feet, a perpendicular height by the casing stones of 480 feet 9 inches, and a slightly wider angle of 51° 50′.

These appeared to be the best proportions so far obtained for the pyramid and were to lead a scholarly English editor to the first important and irrefutable discovery about the nature and purpose of the Great Pyramid.

John Taylor was the editor of the London *Observer* and also an accomplished amateur astronomer and mathematician. Making scale models of the Great Pyramid (on the measurements

of Howard-Vyse and the Frenchmen), he discovered that the pyramid was uniquely designed so that its height was in relation to the perimeter of its base as the radius of a circle is to its circumference. From this he concluded that the ancient builders of the pyramid had a far better idea of π—the mathematical constant that is still irrational, though it has been taken by computers to thousands of decimal places beyond its practical value of 3.14159+—than was suspected by Egyptologists. He also inferred that the Egyptians must have had a good reason for designing a uniquely π-shaped building.

LUDWIG MAYER, *Views of Egypt*, LONDON, 1804

In the King's Chamber, with its highly polished walls, floor, and ceiling, al-Mamun's men found a large coffer containing—nothing.

It dawned on Taylor that they might have intended to relate their pyramid to a solid hemisphere and might have wanted to make a scale model of the planet. To do so, they would have had to know that the planet was a sphere, what its actual dimensions were, and that there was only *one* angle of slope to a pyramid that would make the relation precise: the π angle.

To discover on what earth-commensurate unit the pyramid had been designed, Taylor reportedly fiddled with the figures and was intrigued to find that π times a height of 116.5 units gave a base perimeter of 366. This was so close to the number of days in the solar year that Taylor wondered if the ancient Egyptians might have ingeniously used the daily rotation of the earth on its axis divided into the orbit of its revolutions around the sun to obtain their basic cubit, which Taylor worked out at 25.025 British inches. Taylor also noted that if he converted the perimeter into inches, it came to almost exactly a hundred times 366.

By coincidence, England's leading astronomer of the early nineteenth century, Sir John Herschel, had just postulated a unit half a human hair's breadth longer than the British inch as the only sensible earth-commensurable unit, based on the actual size of the earth.

Herschel criticized the French meter, which had been derived from a curved meridian of the earth, as being erratic and variable because the earth is not a true sphere. According to Herschel, the only reliable basis for a standard of measure was the axis of the earth from pole to pole. A recent ordnance survey had fixed the length of this axis at 500,500,000 British inches, or, if the British inch were half a hair broader, a round 500,000,000 inches.

Herschel pointed out that 50 such inches would make a yard exactly one ten-millionth of the polar axis, and half that measure, or 25 inches, would make a very useful cubit. These were, respectively, the inch and the cubit that Taylor had found to fit the Great Pyramid in multiples of almost 366.*

*That the figuring was not arbitrary was confirmed by the 1957–58 International Geophysical Year geodetic research with orbiting vehicles, which obtained a figure of 3,949.89 miles for the polar radius of the earth. This figure, reduced to inches and divided by 10,000,000, comes to 25.026142 84, or the length of Newton's and Taylor's cubit, correct to the second decimal place.

Taylor's mind boggled. There was no indication of any civilization in antiquity capable of working out such a scheme. Being a man of strong religious convictions, Taylor concluded that whoever had designed the Great Pyramid must have done so, like the Biblical Noah, at the direct inspiration of God.

But the scholarly would have none of his theory, and Taylor feared he would go to his death without being able to convince the world of the validity of his discovery. Then, just before he died in 1864, he received the support of Charles Piazzi Smyth, Astronomer Royal for Scotland.

Smyth was a talented and equally religious character. A brilliant mathematician, he presented a paper to the Royal Society of Edinburgh in support of Taylor's theory, but fared no better than Taylor at the hands of his colleagues.

Aroused by their rebuff, Smyth decided to organize an expedition to the Great Pyramid to measure it scientifically, both inside and out, so as to substantiate or refute Taylor's theories. On the Giza Plateau he and his wife lived in an abandoned tomb overlooking the desert, and for months he measured the Great Pyramid, up and down, inside and out.

Smyth found the pyramid so truly aligned to north that he agreed with Jomard that the Egyptians must have observed a polar star along the descending passage. After extensive calculations he came to the conclusion that the pyramid had been completed in 2170 B.C., when the star Alcyone would have transited at midnight of the equinox.

Smyth's main problem was to validate Taylor's theory that the Great Pyramid was built on a cubit of 25.025 British inches and that the number of these cubits contained in a side at the base would give the length of the year

in days. For this he needed a precise figure for the length of the north side, which had again become covered by sand during the generation since Howard-Vyse. In vain Smyth pleaded with the viceroy for men to clear the north side. The khedive Ismaïl, who was not loath to commission Verdi to write the opera *Aïda,* could spare no funds for the pyramid.

Smyth was obliged to rely on the help of two Scottish surveyors who happened to be on a tour of the Holy Land and were willing and able to pinpoint the socket holes. But they too had to measure up and down the intervening mounds of debris; so the figure they obtained was shorter than the 9,131.055 inches required by Smyth to substantiate Taylor's theory.

In his enthusiasm, and in his profound conviction of a divine authorship of the pyramid, Smyth decided that the structure *had* to contain the right figure, and by using the mean of the various measurements, he announced that the pyramid incorporated the "sacred" cubit of 25.025 inches exactly 365.242 times in the perimeter and that the builders had been inspired with a knowledge of π correct to five decimal places.

Smyth also concluded that the British inch had lost one part in a thousand in the course of being passed down to modern Britons from whoever had inspired the builders of the pyramid, a conceit that did much to popularize the theory that the latter-day inhabitants of the British Isles were descended from the lost tribes of Israel. Smyth was even carried away into believing that the pyramid had been designed as a huge prophetic calendar outlining the history of mankind over a period of six thousand years, based on one pyramid inch to a year, measured along its various passages. Smyth's fellow academicians treated him with what they considered to be deserved derision.

To settle the question of the pyramid's measurements once and for all, a young surveyor named William Flinders Petrie (later to become Sir Flinders) took off for the pyramids and set up shop in a tomb. For almost a year young Petrie surveyed the entire Giza Plateau with a very fine theodolite that enabled him to triangulate the pyramid to within a quarter of an inch.

Seven Englishmen with one obsession. Over the centuries the Great Pyramid has attracted the attention of such illustrious scientists as Sir Isaac Newton and Sir John Herschel—and such luckless duffers as Charles Piazzi Smyth, who held that it had been designed by none other than God.

From his measurements Petrie concluded that the pyramid had been built not on Smyth's sacred cubit but on a "royal" cubit of 20.63 inches—the same cubit found by Greaves and Newton to fit the King's Chamber—and that the pyramid had been designed to have a height of 280 of these royal cubits and a base length of 440. This vindicated Taylor's thesis about the π relation in that it gave the very useful figure for π of 22/7, or 3.14258. Petrie also noted that the King's Chamber formed two basic Pythagorean triangles of $2{\cdot}\sqrt{5}{\cdot}3$ and $3{\cdot}4{\cdot}5$—two thousand years before Pythagoras. But Petrie's conclusion that the builders of the pyramid had laid the cornerstones about 20 inches deeper than the pavement on which the building rests made it impossible to have the base length *below* this pavement measured. This destroyed Smyth's theory that the sacred cubit fit into the perimeter exactly 365.242 times.

For his efforts Petrie was awarded a £100 grant from the Royal Society, while Smyth was relegated to the category of religious enthusiast. His sacred cubit was considered idle fancy, and all but a die-hard retinue of "pyramidologists" who were convinced of the prophetic nature of the pyramids lost interest in his scientific speculations. All but one man, that is.

Just before he died, Smyth found the support of a Yorkshireman, Moses B. Cotsworth, whose ambition was to reform the calendar. Cotsworth—who cared little for Smyth's religious and prophetic theories—noted that Smyth had observed that on the day in spring

NEWTON: THE SCIENCE MUSEUM, LONDON; LOCKYER: CULVER; ALL OTHERS: *The International Standard*, VOL. 1, 1883

when the sun rose just high enough on the meridian to stand above the apex of the pyramid, its rays would suddenly illuminate the entire north face. Cotsworth concluded that the phenomenon must have once been designed to occur at the vernal equinox. From this hypothesis Cotsworth determined that the pyramid could have been used as an accurate sundial to mark not only the seasons and the hours of the day but also the exact length of the years, by means of the shadow it cast.

Cotsworth figured that the tallest obelisk that could be constructed and set in place would not, at the latitude of the pyramid, cast a shadow long enough to indicate accurately the year's end. However, a pyramid with an apex 484 feet high, perfectly vertical and perfectly oriented, *could* cast a shadow long enough to show the tiny change in the sun's altitude at the winter solstice.

Given its height, the pyramid would cast a shadow 268 feet beyond its base line at the winter solstice, diminishing almost to zero in the spring. Its variance would also denote the four-year cycle of leap years. Cotsworth concluded that there must have been a perfectly flat floor on the north side of the pyramid, with a line extending from it along which the shadows could be watched and measured as they approached and retreated from their longest point at the winter solstice.

The great Egyptologist Professor Gaston Maspero, director of the Services des Antiquités in Cairo, showed Cotsworth an Egyptian hieroglyph of an obelisk surmounted by a sun atop a truncated pyramid. This indicated to Cotsworth that obelisks might have originally been placed atop single platforms or mastabas and then gradually raised on stepped pyramids for a greater height. Cotsworth conjectured that at some point a stepped pyramid such as the one at Sakkara topped by an obelisk might have developed into a solid pyramid such as that of Cheops.

Richard A. Proctor, a British astronomer and author of popular books on science at the turn of the century, developed the theory, which gave support to Cotsworth, that the Great Pyramid could have been used as an astronomical observatory while still a truncated mass reaching only to the level of the King's Chamber, where a square platform could have been surmounted by a central obelisk.

Proctor also seized upon the idea that Alpha Draconis shone directly down the descending passage at the time it was closest to the earth's celestial pole and that its light was used to aim the descending passage toward true north. (Petrie had found the 350-foot sides of the passage to be no more than a fraction of an inch out of perfect azimuth).

Proctor's theory gave a solution to other mysterious aspects of the pyramid, such as the complementary angle of about 26 degrees of the ascending passage and the peculiar corbeled structure of the Grand Gallery. Proctor surmised that in order to keep the pyramid oriented to true north as the building rose level by level, the light of Alpha Draconis could have been reflected upward at the complementary angle by simply placing a reflecting pool in the descending passage at the point of intersection, thus providing a guideline of starlight all the way up to the level of the King's Chamber.

To explain the shape and perfect north-south orientation of the Grand Gallery, Proctor pointed out that the gallery could have served as a kind of telescope with a fixed meridian by means of which the motions of the moon and planets, and the apparent motion of the sun and stars, could have been accurately noted by a series of observers at fixed points along the inclined slope. Looking up through a slot, the observers could have noted the transit of heavenly bodies just as the modern astronomer sets his transit circle to a vertical meridian. By looking down the descending passage into a reflecting pool, an ancient astronomer could have observed the exact moment of a star's transit. The same system is used today at the U.S. Naval Observatory, where the daily transit of stars is noted to a split second by their reflection in a pool of mercury.

The Grand Gallery, says Proctor, was "the most perfect observatory ever made till the telescopic art revealed a way of exact observation without those massive structures." With it, the ancient Egyptians could have mapped the heliocentric, or sun-centered, pattern of our solar system several thousand years before Copernicus.

Sir Norman Lockyer, the British astronomer who was knighted for his discovery of helium in the sun's atmosphere, corroborated the theory that the great temples of Egypt were astronomical observatories oriented to the sun and the stars. The temples, as he pointed out, filtered a ray of light through a long colonnade, or series of shutters, in such a way as to indicate with great accuracy the moment of the solstice, and hence the exact length of the year.

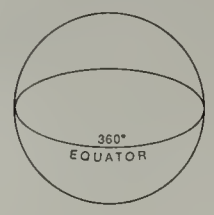
It was not until 1924 that precise measurements of the Great Pyramid were obtained, when the German Institute in Cairo agreed to clear the rubble from the base and the Egyptian government hired a professional surveyor, J. H. Cole, to make a survey that would establish the base lines, height, and apothem of the pyramid to within a few millimeters.

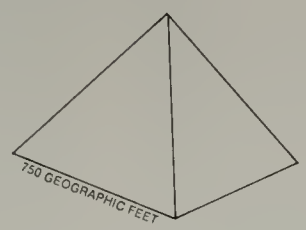
This at last resolved the mystery of the cubits. Jomard had been very close in his measurement of the base, and absolutely correct in his deductions. Even his apothem data was correct, though his dimension for the apothem appeared to be too short. Professor Livio Catullo Stecchini, who obtained his doctorate at Harvard in the science of ancient mensuration, found that Agatharchides of Cnidus had reported that the pyramid was topped by a small pyramidion, or capstone, of 4 cubits, which could be included or not in the calculation. Discount it, and everything fits.

DIAGRAMS BY CAL SACKS

THE TOMPKINS HYPOTHESES

THE PYRAMID BUILDERS' GEOGRAPHIC FOOT IS BASED ON A SECOND OF ARC





The circumference of the earth is divided into 360 degrees of arc. Each degree is divided into 60 minutes and each minute into 60 seconds. The number of seconds of arc in the earth's circumference is therefore:

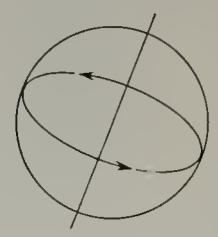
360 x 60 x 60 = 1,296,000 seconds of arc.

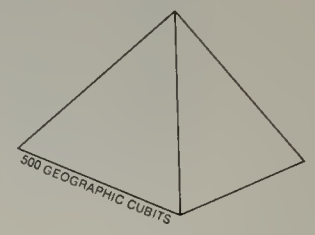
The perimeter of the Great Pyramid measures 750 times 4, or 3,000 geographic feet. Twice this figure equals 1 minute of arc at the equator. So the number of geographic feet in the earth's equatorial circumference is:

6,000 x 60 x 360 = 129,600,000 geographic feet.

So the earth revolves at a rate of 1,000 geographic cubits per second of time at the equator.

THE EARLY EGYPTIANS KNEW THE RATE AT WHICH THE EARTH REVOLVES





The earth makes one complete revolution on its axis in a day of 24 hours. Each hour is divided into 60 minutes, each of 60 seconds. The number of seconds in a day is therefore:

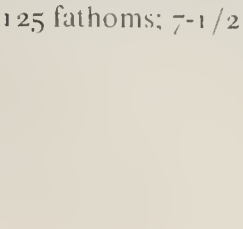
24 x 60 x 60 = 86,400 seconds.

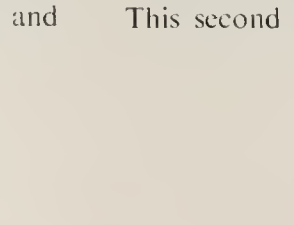
The perimeter of the Great Pyramid measures 3,000 geographic feet, or 2,000 geographic cubits. Converting the earth's circumference from geographic feet to geographic cubits,

129,600,000 feet x 2/3 = 86,400,000 geographic cubits.

One second of arc at the equator is therefore equal to exactly 100 geographic feet.

THE BUILDERS OF THE GREAT PYRAMID KNEW THE EARTH'S CIRCUMFERENCE





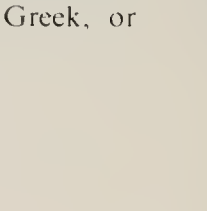
The circumference of the earth in meters, as measured along a meridian, comes to:

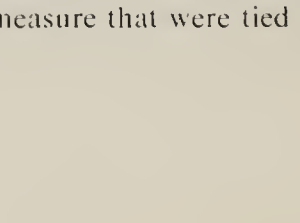
40,000,000 meters or 40,000 kilometers.

One geographic foot equals .308 meter. Converting the circumference in geographic feet to meters, 129,600,000 geographic feet times .308 meter comes to:

39,916,800 meters or 39,916.8 kilometers.

THE GREAT PYRAMID IS A SCALE MODEL OF THE NORTHERN HEMISPHERE





The circumference of the earth at the equator is represented in the Great Pyramid by the perimeter at the base, and the earth's polar radius by the pyramid's height. The height of the pyramid is to the perimeter at the base as the radius of a circle is to its circumference—or as the polar radius is to the earth's circumference. The perimeter at the base measures 1,760 royal cubits, the height, 280 royal cubits.

$\frac{1,760}{280 \times 2} = \frac{1,760}{560} = \frac{22}{7} = 3.14285$, or a practical value for π.

Without the 4-cubit pyramidion, the apothem of the Great Pyramid contains, in round numbers: 616 Egyptian short feet; 600 Greek, or geographic, feet; 400 Greek, or geographic, cubits; 352 royal cubits; 320 *pyk belady* cubits; 100 fathoms of 6 Greek feet; 6 plethra of 100 Greek feet (equal to 6 seconds of arc); and 1 stadium of 600 Greek feet. The apothem is one-tenth of a geographic mile long, or one-tenth of a minute of arc, or 1/600 of a geographic degree at the equator.

As for the base, it contains: 770 Egyptian short feet; 750 Greek, or geographic, feet; 500 Greek, or geographic, cubits; 440 royal cubits; 400 *pyk belady* cubits; 125 fathoms; 7-1/2 plethra; and 1-1/4 stadia. It is one-eighth of a geographic mile, or one-eighth of a minute of arc, and 1/480 of a geographic degree—just as his reading of the classics had led Jomard to believe. The chances of all this being coincidence are infinitesimal.

Clearly the Great Pyramid is not only a true standard of measure but a scale model of the Northern Hemisphere, built on a fraction of the circumference of the earth and a fraction of the polar radius. The ancients divided the circumference of the earth by 360 to obtain a degree, then divided the result by 60 for a minute, and this minute again by 60 for a second of arc. This second of arc is 100 Greek, or geographic, feet; and 1-1/2 such feet make a geographic cubit of .462 meter — the same cubit that Jomard found in use when he arrived in Egypt and that had been in use in the time of al-Mamun. The circumference of the globe was thus 360 x 60 x 60 x 100, or 129,600,000 geographic feet. Translated into meters by multiplying by .308, the result is 39,916.8 kilometers, compared with our modern 40,000 kilometers. Even more astounding, this gives an earth circumference of 86,400,000 geographic cubits. The number of seconds in a day is 24 x 60 x 60, or 86,400. So it is evident that the ancient Egyptians had worked out units of measure that were tied to the

earth's rotation on its axis; 100 of these feet equaled 1 second of arc, and twice the 500 cubits of the base of the pyramid was equal to the distance rotated by the earth at the equator in 1 second of time.

Jomard had been on the track when he had multiplied his length of the apothem by 600 to obtain a degree of 110,832.96 meters, correct at the 28th parallel of latitude; this had led him to conclude that the ancient Egyptians must have chosen the mean-latitude value for all of Egypt, which he figured to be 27° 40′.

Had Jomard been able to measure all four sides of the pyramid with Cole's precision he would have realized that the ancient Egyptians quite logically intended the base of the pyramid to indicate the value of a degree *at the equator*. Cole's figure for twice the perimeter was 1,842.922 meters. The modern calculation for a minute of degree at the equator is a virtually identical 1,842.78 meters.

From all this it is evident that the builders of the Great Pyramid knew the correct circumference of the earth; that the earth is flattened at the poles, which causes a degree of latitude to lengthen toward the pole; that it rotates in one day on an axis tilted about 23-1/2 degrees to the ecliptic, causing night and day, and that this tilt causes the seasons; that the earth revolves around the sun in a year of 365.2422 days; and that the earth's celestial north pole describes a slow circle around the pole of the ecliptic, causing the precession of the equinoxes, which brings a new constellation of the zodiac behind the sun at the equinox every 2,200 years in a grand cycle of 26,000 years.

Whoever built the Great Pyramid knew, as the legends accurately report, how to make excellent charts of the stars with which to calculate longitude and draw maps of the globe, and so travel at will across its continents and oceans.

Professor Stecchini also demonstrated that maps of great precision existed in the ancient world, some of which are described in the works of such authors as Herodotus, and which are confirmed by the location of the principal political and religious centers of antiquity, such as Jerusalem, Mecca, Delphi, Dodona, Sardis, Susa, Persepolis, and even the remote Chinese capital of Anyang, all of which turn out to be geodetic landmarks tied to the prime meridian of Egypt.

Not only is the Great Pyramid a perfect π-shaped structure, which geometrically simulates a hemisphere, it also incorporates the Golden Section, or Φ relation, in its meridian section. This makes each side of the pyramid represent a quadrant of 90 degrees of the Northern Hemisphere.

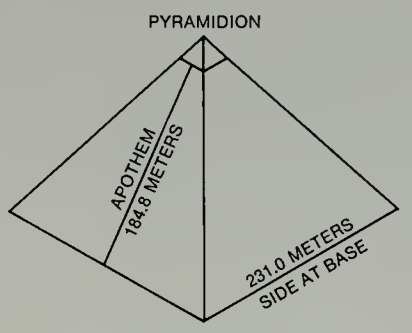
Stecchini concluded that a decay of the ancient astronomical and geodetic sciences had already set in by the beginning of the first millennium B.C., a decay that was accelerated by Alexander the Great's destruction of the scientific centers of Persepolis and Heliopolis and nearly completed by the burning of the Alexandrian library at the beginning of the Christian Era.

Stecchini demonstrated that Eratosthenes did not establish the circumference of the earth—as he is currently fabled to have done—by measuring the zenith distance at Alexandria at the summer solstice, when the sun casts no shadow in a well at the tropical border of Egypt at Syene. Eratosthenes, as chief of the library at Alexandria in the third century B.C., merely picked up fragmented data that had been correct more than two thousand years earlier, when the Tropic of Cancer had been at 23° 51′ instead of at 23° 45′. (It has now shifted to 23° 27′.)

What caused this decline of knowledge some time during the second millennium B.C. remains a mystery; but further scrutiny might be applied to the various theories of catastrophes that are known to have obliterated civilizations such as the Minoan, or are postulated in the works of Immanuel Velikovsky. A clue may also be found in the thousands of cuneiform mathematical texts in our libraries and museums that lie undeciphered because of the ingrained reluctance of academicians to look at, let alone analyze, the evidence of the advanced sciences of astronomy, geography, and mathematics displayed in the construction of the Great Pyramid of Cheops.

Peter Tompkins is the author of Secrets of the Great Pyramid, *soon to be published by Harper and Row, and several books on World War II. He first saw the pyramid in 1941, as a war correspondent.*

Ancient Units of Measure That Occur in the Great Pyramid



IN THE APOTHEM
(Minus the Pyramidion)
616 Egyptian short feet (.300 meter)
600 geographic feet (.308 meter)
400 geographic cubits (.426 meter)
352 royal cubits (.525 meter)
320 *pyk belady* cubits (.5775 meter)
100 fathoms (of 6 geographic feet)
6 plethra (of 100 geographic feet)
1 stadium (of 600 geographic feet)
1/10 of a geographic mile
1/10 of a minute of arc at the equator
1/600 of a degree at the equator
1/216,000 of the earth's circumference

IN A SIDE AT THE BASE
770 Egyptian short feet
750 geographic feet
500 geographic cubits
440 royal cubits
400 *pyk belady* cubits
125 fathoms
7-1/2 plethra
1-1/4 stadia
1/8 of a geographic mile
1/8 of a minute of arc
1/480 of a geographic degree
1/172,800 of the earth's circumference

These measurements, says our author, could not possibly have all been incorporated in the pyramid by chance.

GOLDEN LINKS TO THE BRONZE AGE

Misunderstandings still hover, like an ancient curse, over a hoard of beautiful gold jewelry on display at the Museum of Fine Arts, Boston. But, our author says, "The voices crying 'scandal!' are crying irrationally"

THE BETTMANN ARCHIVE INC.

PHOTOGRAPHED AT THE MUSEUM OF FINE ARTS, BOSTON, BY PHILIPPE HALSMAN. THE GOLD IS THE GIFT OF LANDON T. CLAY

Pride and privilege: arrayed in the funerary gold finery of a prehistoric barbarian princess, the young lady opposite is holding aloft the gold cylinder seal of a high Egyptian official that dates the jewelry she is wearing to about 2400 B.C. Are her hair-rings and diadem properly fixed in place, and are the gold suns and half-moons correctly placed over her chest? No one knows, but fitting the ornaments on a living person helps scholars to arrive at a likely conjecture. The German archaeologist Heinrich Schliemann had the same idea a century ago when he decked out his wife, above, in the ornate gold jewelry that he had dug up on the site of ancient Troy.

The pyramids of Giza had been standing little more than a century when, in some still-barbaric kingdom north of Egypt, on the rim of the eastern Mediterranean, a young princess died and was buried in the regalia of her rank. Gold hair-rings adorned her thick tresses, together with a ribbon and a diadem of the same metal; gold rings and bracelets encircled her fingers and wrists, a gold necklace clasped her throat, and a glittering mass of gold ornaments shaped like suns and crescent moons covered her dress. Also into the tomb with her went another gold object, a hollow cylinder with hieroglyphs incised in its outer surface—the seal of a Fifth Dynasty Egyptian official.

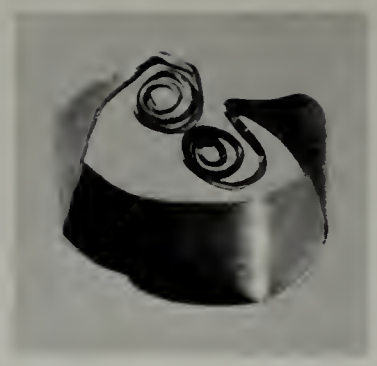
The location of the tomb and the identity of its occupant remain unknown, but some such royal burial must have occurred to account for the presence in one place of no fewer than one hundred and twenty-five pieces of early Bronze Age gold jewelry. This hoard was acquired by the Museum of Fine Arts in Boston in 1968 as the gift of one of its trustees, Mr. Landon T. Clay. Since then, it has attracted considerable attention and aroused considerable controversy. It is also beginning at last to be appreciated for the evidence it affords of links between various eastern Mediterranean cultures in the third millennium before Christ. But the mystery of its provenance and the very preciseness of the dates provided by the seal have given rise to a number of questions—questions that have tended to obscure the real importance of the treasure while throwing into relief the whole ugly subject of archaeological smuggling.

Leaving these questions aside for the moment, a closer look at the Boston hoard may bring its historical and artistic importance into sharper focus.

The cylinder seal, fortunately, contains quite precise chronological information: it is marked with the cartouches of two successive Egyptian Pharaohs, Menkawhor and Djedkare (Isesy), who reigned 2497–2489 and 2489–2450 B.C. by one chronology, or 2422–2414 and 2414–2357 B.C. by another. These dates place the Boston hoard perhaps two centuries earlier in time than the gold treasure the pioneer archaeologist Heinrich Schliemann dug up a hundred years ago on the site of ancient Troy. That hoard, which Schliemann "saved for science" by smuggling it out of Turkey, has since vanished, stolen and perhaps melted down in Berlin or Russia during World War II; pictures of it exist, however, and a comparison of the ornaments they show with the items

By EMILY VERMEULE

COLOR PHOTOGRAPHS: PHILIPPE HALSMAN



The gold ring with spiral finials above is one of five that are part of the Boston treasure.

The gold lions cold-chiseled on the bracelet at left are modeled in an abstract style that renders fur and muscles as planes.

Gold double spirals like the one above were often worn by Bronze Age kings and queens.

that make up the Boston hoard is most instructive. The fussy, overelaborate style of the Trojan gold pieces suggests that they were fashioned during the later stages of a long tradition of metalworking, in the course of which sophisticated designs had increasingly supplanted the simpler, more classic treatment of earlier stages —as exemplified, for instance, by the gold ornaments of the Boston treasure. These plain forms corroborate the chronological testimony of the seal.

But if placing the Boston treasure in time is comparatively easy, placing it in space is not. Take the sixty-nine flat rosettes in two sizes and the thirty-five lunettes, also in two sizes, which were made to be sewn onto cloth and which were perhaps arrayed across the dead princess's chest in pectoral display. If the circles and crescents are anything more than pure design, they are reflections of solar and lunar symbolism somewhat more characteristic of the Mesopotamian region than of the Mediterranean coast: crescents and sun disks were worn together, for instance, around Tell Halaf, near the sources of the Tigris and the Euphrates. Yet the borders of punched dots on the rosettes and lunettes occur also in Crete and Iran and in the harshly decorated gold found in the graves of Alaca Hüyük, in central Anatolia. The five concentric circles around the boss on each rosette are somewhat reminiscent of inlaid silver circles appearing on bronze animals from Alaca; they are also a favorite motif in the Cycladic islands and are found, too, in Syria. And sun disks were popular at the time in Cyprus. The site the gold came from must have been upon one of the long trade routes that ran overland to the Tigris-Euphrates region, as well as being linked by shipping lanes to Egypt and the islands.

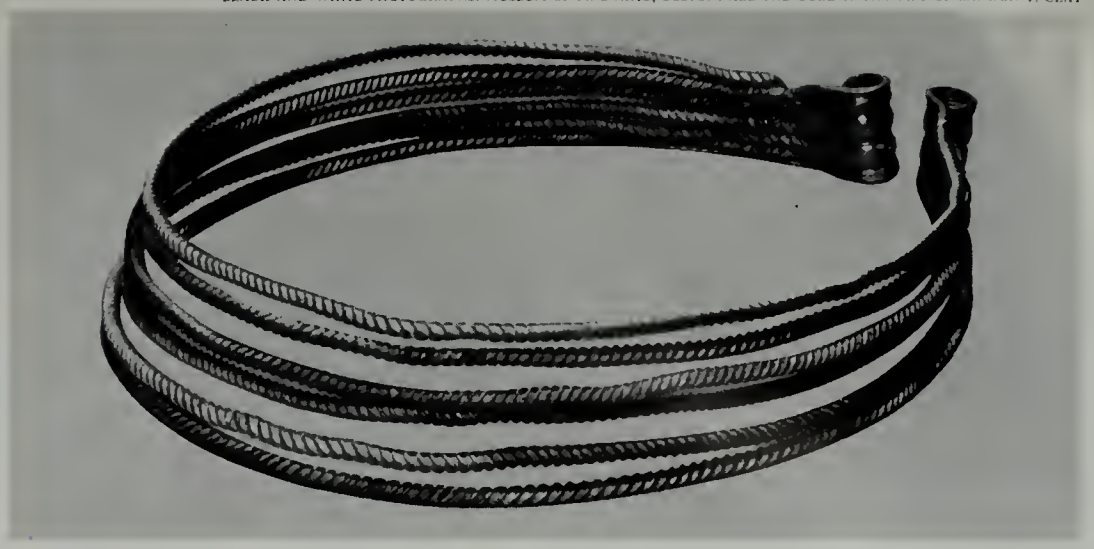
The Early Bronze Age between 2500 and 2200 B.C. witnessed such a variety of cultural developments, with new towns being founded and vigorous new tribes thrusting their way into the expanding activity of trade and shipping, that intercultural exchanges of symbols and forms were common, indeed characteristic. In this perspective the original site of the Boston hoard must have been somewhere within or just outside a vast polygon connecting four fixed points: the Royal Cemetery of Ur in Mesopotamia, with its treasures of gold and lapis lazuli; the sophisticated court of Egypt in the Fifth Dynasty of the Old Kingdom; Crete and Greece, where the goldsmith's art was having its beginnings; and such northern outposts as Troy, with its influence over the nearby islands and the Anatolian interior.

The abstract forms of the Boston treasure are impressive. No great love is shown on the part of the craftsmen for figured or natural designs, and there is no overt iconography. Only the crouching lions chiseled at the ends of one of three bracelets, and the hieroglyphs cut in the seal, recall the more active imagery of Egypt and Mesopotamia. The lions are simply modeled, with broad, shawl-like manes and flat planes unruffled by fur or muscles; the tradition of simple lions of this kind goes back to predynastic times in Egypt, nearly half a millennium before the bracelet was made, and continues into the Fifth Dynasty, the age after the pyramids.

The gold seal is, of course, the product of an altogether different world from that of the conjectural dead princess. It is one of those symbolic documents of rank and power that Old Kingdom Egyptians carried before the scarab came into general use. The bearer's name is not recorded, but the hieroglyphs are quite explicit about what he did for his two royal masters. Under Menkawhor he was "Inspector of Tenant Farmers of the Pyramid called Netjer." Tenant Farmers produced food to keep the dead king satisfied, so the seal's owner would have continued to work for Menkawhor even as he served his successor, Djedkare-Isesy, in a somewhat more advanced capacity, as Master of Secrets and House Official of the Palace.

This nameless man must have combined the local duties of estate inspector and farmer with the more adventurous duties of a courier or ambassador on at least one occasion, for the seal would not have left his person; he must

BLACK AND WHITE PHOTOGRAPHS: MUSEUM OF FINE ARTS, BOSTON. ALL THE GOLD IS THE GIFT OF LANDON T. CLAY



Hieroglyphs cut in the gold surface of the clay-base cylinder seal at left give details of its owner's services to two successive Fifth Dynasty Pharaohs. The torque above, made of gold wire, is now too stiff and brittle with age to go around the neck of the photographer's model.

have carried it to some land north of Egypt. The Egyptians themselves contrasted those two ways of life: "The Tenant Farmer, his reckonings go on forever . . . wearier he is than a wayfarer of the Delta. Yet he is a picked man; his safety is a safety from lions." While "The Courier goes out to a foreign country, after he has made over his property to his children, being afraid of lions and Asiatics." Sometimes these Egyptians died abroad and even carried statues with them to be put in their alien tombs. The private adventures of our courier will, of course, never be learned, but it is one of the pleasanter mysteries of this hoard to speculate how the great gold cylinder ended up with a girl's simpler jewels.

Another, major mystery—which has caused more stir than the ornaments intrinsically are worth—is precisely where the gold came from. If the hoard had not had the cylinder seal with it, offering one of the few clear dates for international contact in the entire Bronze Age, it would have been less crucial to know the particular region; the usual forms of tombs in this region; what else might have been found with the goldlike pottery that could immediately be dated and connected to other sites; and whether there is a town nearby that might prove to be one of the most important excavation sites of the period, because of its evident links with foreign lands. Of course, for the Museum of Fine Arts it would be imperative to know how the gold was found, how it lay on the body, what sex and age the skeleton were, whether it lay extended in a chamber tomb or in a jar with the knees drawn up under the chin, whether there were other bodies, whether, indeed, the gold is still all together.

All this information was lost long before Boston ever heard of, or saw photographs of, the treasure. The gold had been on the international art market since at least 1966, when it was offered to a museum in Germany. It had clearly passed through many hands, and with each passage the rumored provenance shifted. Dealers are known to fake provenances to protect their sources, and although educated guesses, backed by certain hard information, can be made as to where the treasure was found, no one will know for certain until the original tomb robber leads someone to the original hole in the ground. We may all hope that this will happen soon, and that archaeological excavation can then begin, but let us not confuse hope with probability.

For these reasons, the voices crying "scandal!" about the Boston Museum's exhibition of the treasure are crying irrationally. By a flight of illogic some scholars seem to believe that if the Boston Museum had not been given the treasure by a donor whose instinct is unerringly right for what must be saved and protected on the market, it might have been put back in the tomb in an undisturbed context to be found by some putative future archaeological expedition. This is scarcely the case in an imperfect world.

Other scholars have welcomed the fact that the group was saved for study instead of being broken up among private collectors, but feel the museum should have kept quiet about the purchase, as some museums do about treasures in sealed basements. The policy of the Boston Museum has always been to make its possessions available to experts and students, and it is one of the very few museums in the world where the Classical Department, at least, has nothing worthwhile in the basement at all. Every interesting piece is exhibited. It seemed to us better from the start to show the gold to scholars and to the public. The opposite case may be illustrated by the Dorak treasure found near Troy in Turkey, which has so totally disappeared, or is being so well and discreetly hidden, that only one scholar has ever seen it and most are not sure it exists. Let the learned world decide which is the better way.

An archaeologist, classicist, and poet, and the mother of two small children, Emily Vermeule is a research fellow at the Museum of Fine Arts, Boston, where her husband is Curator of the Department of Classical Art. The author of Greece in the Bronze Age, *she is also Zemurray-Stone Professor at Harvard.*

VENICE REVISITED

A contemporary Venetian painter records the agony of a great city fighting off death

1: "In the cosmic silence the stones of the Doge's Palace roll away."

In the days of its glory Venice was the home and the inspiration of great painters. Now, in its decay, it has produced another—perhaps the last—in this illustrious line. His name: Ludovico De Luigi. His subject: Venice itself, but Venice either translated into another realm of existence or overwhelmed by some sort of supernormal catastrophe.

Among his finest paintings are visionary landscapes within which elements of the real city have been incorporated. Most striking is a view, rendered from water level, of the Grand Canyon of the Colorado River, overarched, as though it were a canal, by two graceful Venetian bridges. A boatload of mysterious voyagers gazes up at them in silent wonder. In another painting De Luigi shows a group of wild mountains, all crags and beetling cliffs. Within this scarcely habitable mountainscape he sets the noble church of the Salute (which greets every visitor to Venice entering the Grand Canal), together with the whole charming little section of houses associated with it, and high above, as though it were an abandoned fortification or a fantastic outgrowth of the mountain, the Rialto bridge. The two buildings are quite as beautiful among the towering dream-rocks as they are in reality, lying along the sea-level Grand Canal. But they have changed their dimensions and their function. They now recall Byzantine sanctuaries created in the Dark Ages and set among harsh, precipitous mountains in order to escape or resist raiding barbarians. Behind this complex of rude crags and sophisticated buildings, far in the illuminated distance, appears a fragile Venice—as a visionary Byzantium might have appeared to the monks of Meteora or Athos.

These surrealist* pictures are calm.

*The critics of the thirties, writing about "surrealism" in English, ought to have rendered the word correctly. The French for "superman" is *surhomme*, and the French *surréalisme* should have been translated as "super-realism." This would have made clear the basic concept, which is that wild, fantastic visions are portrayed with the clarity and detail normally used for depicting scenes from the everyday world. Herbert Read in his introduction to *Surrealism* (London, 1936) says he tried to use the right term, but "the public wanted a strange and not too intelligible word for a strange and not too intelligible thing."

By GILBERT HIGHET

COLOR PHOTOGRAPHS COURTESY OF GALLERIA D'ARTE VENEZ

As a group, De Luigi calls them *Venice Export*. He means (I think) that pieces of the city might imaginably be removed to other regions of the world, and there, although more alien than a transplanted heart, survive and be beautiful.

But most of his pictures are less tranquil, full of violent movement. Often he sees Venice as whirling into ruin. Behind these visions there are two different nightmares. One is the sad dream of the city sinking irrevocably into the shallow water and mud of the lagoon. The other is the phantasm that haunts every intelligent being who (even in films) has seen the explosion of an atomic bomb. Several of De Luigi's paintings show Venice dissolving in an atomic blast. In one of these [Fig. 1] the bomb has not been dropped. It has been placed, as if for a cruel experiment, on the top of the great bell tower in St. Mark's Square, and there, as though in a New Mexico desert, detonated. In this fatal instant it is not the sober sounds of the hour that emerge in concentric spheres from the belfry but the fiery spheres of atomic fission. As they expand, the Doge's Palace collapses, fragmented. The stone tower itself is about to melt like a candle in a furnace.

2: "The insects are set free in the city."

3: "Church of the Salute with figures emerging from the mud."

He has painted several of these dreams, in which an incandescent vortex dominates and destroys a Venice that is scarcely recognizable within its fearful radiance and force. De Luigi is a master of one unusual mode of painting. It is difficult to show bodies in rapid movement on a flat, static canvas —galloping horses or fighting men: it is even more difficult to represent durable objects undergoing violent and instantaneous change. But he depicts huge buildings dissolving in a thousandth of a second, their very fabric changed from durable stone to friable webbing, and that again destined to change—one instant after the moment of the picture—into flame, ash, and nothingness.

Another type of destruction threatens Venice. She rose, like Venus, out of the sea. She is sinking back into it—not the deep, engulfing Adriatic waves but the coastal mire of the lagoon. Therefore De Luigi sometimes conceives of the city as overwhelmed by a rising tide of mud, and by the hideous beings that live and thrive in mud. One of his most peculiar works [Fig. 3] shows the church of the Salute, still bathed in light from above and from one side, but surrounded by sluggish, encroaching clouds and surges of slime—slime animated by amorphous monsters closing in upon the church and suffocating it.

Venice is also being destroyed by people. Crowds, armies, hordes, busloads, trainloads, planeloads, shiploads, of people—they pack the Piazza San Marco and the Merceria and the narrow streets and quays until the city all but sinks under their cumulative weight. They feed the pigeons in the square until, limping and sickly, the pigeons swarm like vermin on a moribund animal. This De Luigi will not say outright in his pictures. But he has dreamed of his city as being infested with swarms of insects, crowding more thickly even than tourists, packing the piazza millions strong, filling the arcades and the windows above them with gesticulating antennae; and he

4: "A STONE BRIDGE OF SIGHS, A STONESCAPE. THE COSMIC VOID IS GLIMPSED THROUGH GAPS."

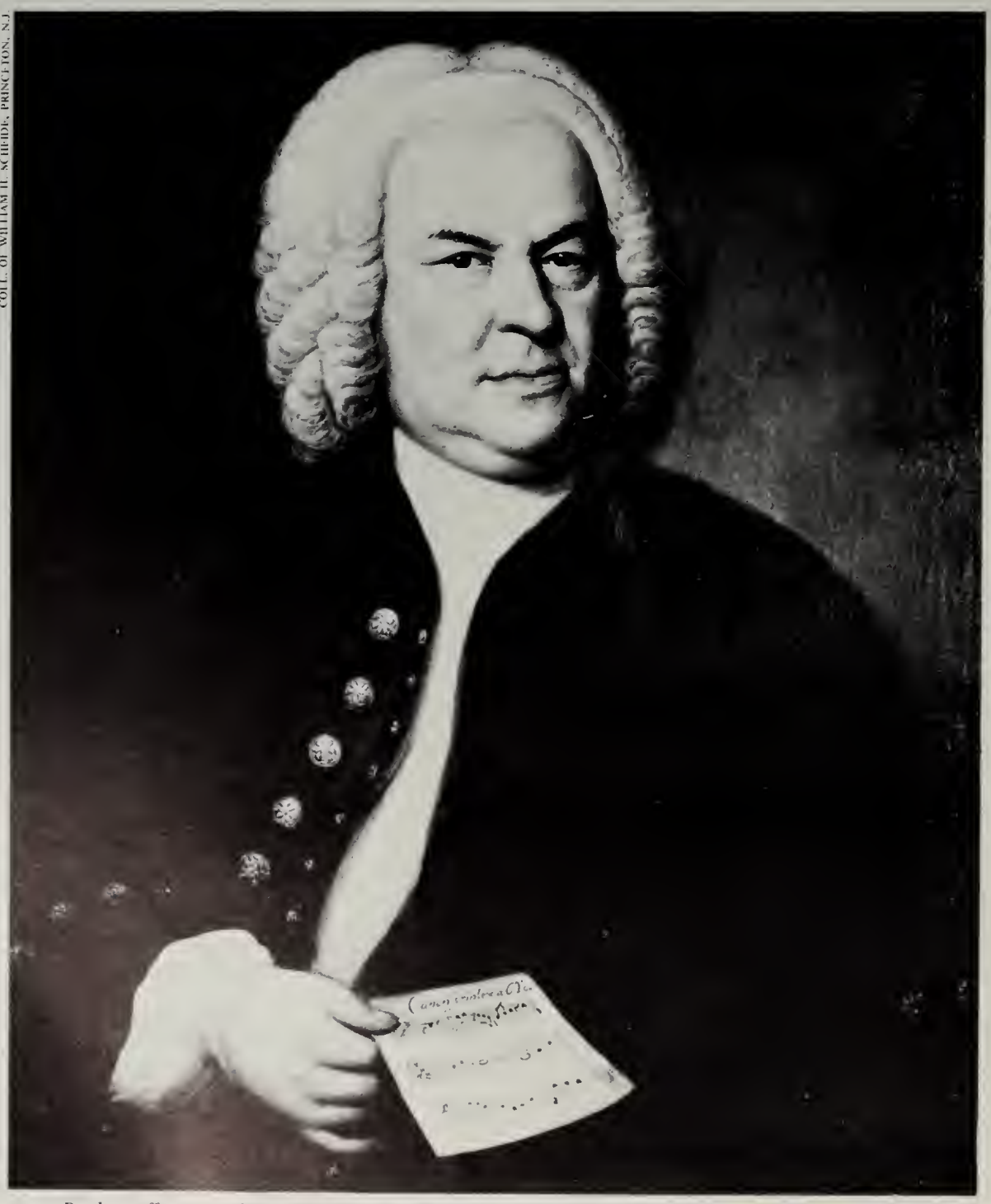
has imagined the Grand Canal as being invaded by huge, handsome, authoritative dragonflies and grasshoppers and other decorative arthropods, dropping eggs as though to make themselves thoroughly at home in the city of Venice forever [Fig. 2].

Sometimes De Luigi has conceived the death of Venice as a sort of petrifaction. The city may not explode into fiery atoms. It may not be swallowed up in viscous fluid. It may grow old and empty and freeze into brittle stone. Without people Venice would become a ghost city. The handsome buildings, with the blood and life drawn out of them, would become crumbling husks, ready to collapse. So De Luigi has sometimes painted his city as though it were being metamorphosed by some cosmic process of decay into cracked and crumbling stone, not fossilized, but aging, ruinous, brittle, flowing away like a slow avalanche. In one such vision [Fig. 4] he sees the Rio di Canonica under the Bridge of Sighs turning into stone. The buildings on each side are nothing but façades, single front walls, uninhabited and ready to fall at any moment. The bridge itself is webbed with wrinkles and cracks like the face of an old, dying woman. One more sigh will shatter it. In the petrified canal two gondolas are poised. They are rowed not by stout, red-faced gondoliers but by robed and winged and haloed spirits, unearthly beings, Christian Charons. Below their barks the canal is stone, but not solid stone: it is a thin crust like the upper surface of a highway pavement, already cracking and falling away into an infinity of blue sky beneath.

Epicurus taught that our earth and our own individual bodies were systems brought together by a combination of chance flux and the laws of atomic attraction, and that in due course they would dissolve again into atoms rushing endlessly through the void. So in another of De Luigi's pictures the Grand Canal, flanked by empty, crumbling façades, falls over a precipice, carrying ruined gondolas with it into the void—while the Lion of St. Mark slinks round a crumbling corner like a hungry and despairing Venetian cat.

Ludovico De Luigi is a surrealist painter, but his roots are deeper than those of most surrealists. His growth as an artist started with a close study of Canaletto's paintings of Venice, some of which he copied in exact detail. The monsters, part human and part animal, that appear in his works are reminiscent of the fantasies of Hieronymus Bosch. A ruined city beautiful even in its degradation: who has ever portrayed it better than Piranesi? Piranesi worshiped the ruins of Rome, and perhaps De Luigi will become the Piranesi of Venice. Dali also seems to have meant a good deal to De Luigi, in particular for his photographically brilliant detail, and perhaps also for his horrific visions of an atomic explosion disrupting a huge building. The long perspectives of grand squares and avenues empty of human beings, brightly lit and (because of their emptiness and illumination) curiously melancholy, remind us of De Chirico. But none of these influences dominates De Luigi. His work has been shaped by his own intense imagination and by his powerful and sensitive paintbrush, hand, and eye. Venice has never had an inspired lyric poet; it has had many fine painters. Now it has a fine painter who is also a poet of lyric, elegiac, almost tragic, inspiration.

JOHANN SEBASTIAN BACH



COLL. OF WILLIAM H. SCHEIDE, PRINCETON, N.J.

Bach proffers a triple canon for six voices in this portrait by E. G. Haussmann painted in 1748.

"Mozart and Stravinsky, as well as Busoni, Brubeck, and the Beatles have all indulged in Bach-cribbing. There hasn't yet been a Broadway musical on Bach, but I can already hear it coming . . ."

Infallible recipe for instant musical success: take a piece by Bach originally written for harpsichord, viola da gamba, or *oboe d'amore,* and rearrange it for jazz combo (like Jacques Loussier), pop group (the Procol Harum), skat-singing voices (the Swingle Singers), or electronic sound-synthesizer (Walter Carlos). So long as you take care not to lose too many of Bach's original notes in the process, the results are bound to be fascinating, for Bach is an inexhaustible quarry of great ideas—of melodic and harmonic ideas that have a curious way of sounding equally valid in any context. This is the rare aspect of beauty that Rainer Maria Rilke once described as the right to be true in every costume and in any mask: *"Woher dein Recht, in jeglichem Kostüme,/in jeder Maske wahr zu sein?"*

Bach-cribbing, of course, is a time-honored custom. Mozart and Stravinsky, as well as Busoni, Brubeck, and the Beatles, have all indulged in it. There hasn't yet been a Broadway musical on Bach, but I can already hear it coming: something on the order of *The Sound of Bach,* about the life of a genial church organist (Zero Mostel) who writes a lot of music and has a lot of children in an old-fashioned German household full of Hallelujahs. Lined up like organ pipes and directed by pert, lovable Anna Magdalena (Julie Andrews), the children do a series of solo and ensemble numbers that are cleverly integrated into the story line. The curtain rises with the cheerful "Wake Up! Wake Up!" chorus *(Wachet auf, ruft uns die Stimme);* then there is the noisy sibling rivalry scene, "There Arose a Conflict" *(Es erhub sich ein Streit),* and the reconciliation, "Rise Up Joyful" *(Steigt freudig in die Luft),* followed by "Waiting for the Bell to Chime" *(Schlage doch, gewünschte Stunde)* and the Jerry Robbins dance number, "Swing it on the Upbeat" *(Schwingt freudig euch empor).* Anna Magdalena sings "Will You Give Me Your Heart" *(Willst du dein Herz mir schenken),* and Sebastian replies with "Oh, Now that I'm on the Way to the Wedding" *(Ach, ich sehe, jetzt da ich zur Hochzeit gehe).* Periodically, Anna announces, "We've Just Had a Child" *(Uns ist ein Kind geboren).* Finally there is the charming arithmetic scene, in which Bach, now slightly less well-tempered than usual, tries to supervise the children's math lessons: *Tue Rechnung! Donnerwort . . .*

None of this, I hasten to add, would be very far from the truth of the matter. As Bach himself boasted to a friend in 1730, his children were "all born musicians, and I can assure you that with the members of my family I can already make up a concert ensemble, both vocal and instrumental." Nor would it be a great sacrilege to rewrite the cantatas as stage numbers. Despite its aura of sanctity, the cantata was always a rather ambiguous form, mixing Italian-style arias with solid German hymn tunes in order to bring the pleasures of the opera house into the chilly atmosphere of north German churches. Pastor Erdmann Neumeister, the Hamburg divine who coined the word "cantata" for this curious amalgam of piety and entertainment, was the first to admit this: "in short, a cantata looks like a piece from an opera, composed of *stylo recitativo* and arias." Bach himself felt no compunction about embellishing his church cantatas, whenever it suited him, with some of his worldliest court music, originally intended for the amusement of fashionable dilettantes. Nor did the Protestant Ethic prevent him from setting Catholic texts to his Lutheran cantatas and dispatching them, now rearranged in the form of a High Mass, as a gift offering to a Catholic king.

On closer inspection the cantatas turn out to be as frankly sensuous and theatrical as anything written in that orotund age of the high baroque, when "all that impresses mankind is theatrical," as Johann Mattheson wrote in 1728. "The whole world is a giant theatre." One doesn't have to be a Freud-

By FREDERIC V. GRUNFELD

ian analyst to hear the pent-up sensuality—or even the clear call of sexual urgency—that often throbs in this music. The Cantata No. 140, *Wachet Auf!*, is a perfect case in point. Its musical and literary imagery is based on the Biblical parable of the wise and the foolish virgins, and their several ways of welcoming the mystical bridegroom. Bach seized the opportunity afforded by the subject to write two of the most rapturous love duets this side of *Tristan und Isolde*, though these are thinly disguised as dialogues between the virgin soul and its bridegroom savior. "When are you coming, my Salvation?" "I'm coming . . . I'm coming," and so on. Or again, in the second duet: "My friend is mine." "And I am thine . . . nothing can sever our love." All of this is expressed in a passionate intertwining of melodies that suggests the caresses of the bridal bed as well as the impatience of the bridegroom, whom a recitative describes as approaching "like a young stag, jumping on the hills." To introduce these scenes, Bach has the orchestra striding along purposefully to the rhythm of a wedding march while the chorus intones a Lutheran chorale punctuated with cries of exhortation. "Wake Up! Wake Up!" the shout echoes through the chorus as the march drones on. "Where are you, wise virgins? Arise, the bridegroom comes . . . take your lamps . . . prepare yourselves for the wedding!" This is Bach's counterpoint in all its astonishing power to convey several levels of thought and action simultaneously—something that words alone have never been able to do.

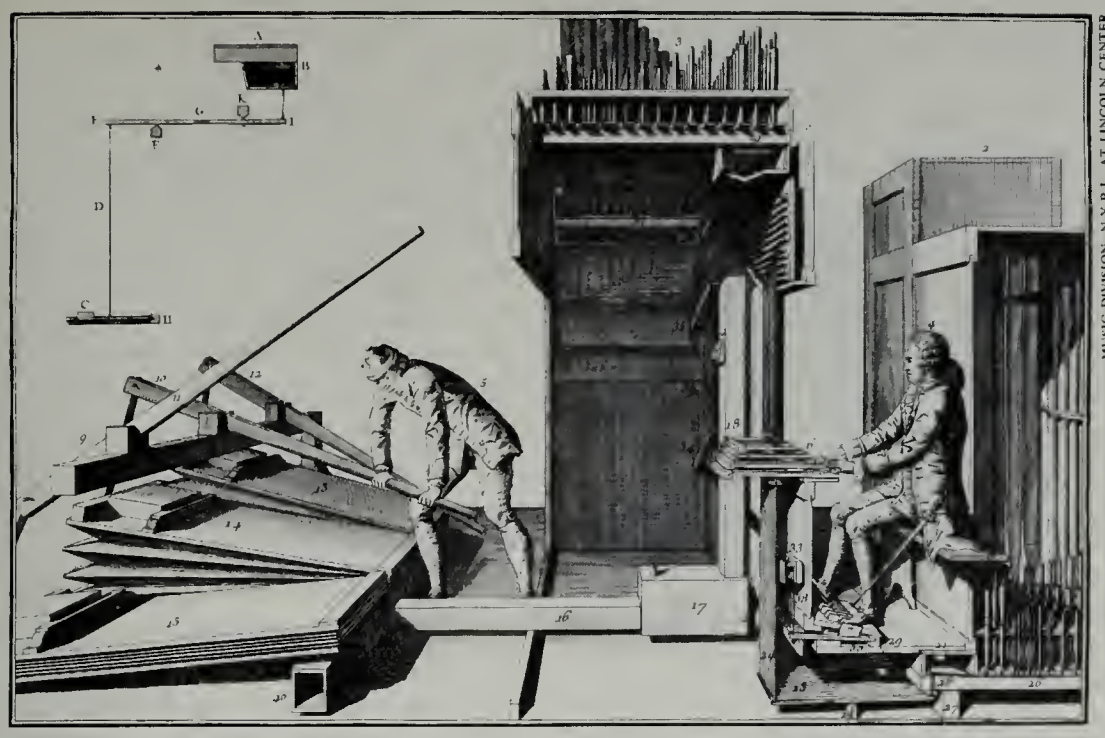
Bach is far from having a patent on this sort of pictorial polyphony, which is one of the more intriguing features of baroque music as a whole. But Bach is the one who uses this complex language most vividly and fluently, as though it were second nature to him. Counterpoint did run in the family, for that matter: the whole of the numerous and formidable Bach clan had cultivated counterpoint for a living since the middle of the sixteenth century. One generation after another had become choirmasters, church organists, town trumpeters, and military bandsmen in Thuringia, Saxony, and Franconia. At their periodic family reunions, says Bach's first biographer, J. N. Forkel, "they sang folksongs whose contents were partly humorous and partly indecent, all together and extempore, but in such a way that the several improvised parts made a kind of harmony together, though the texts were different in every part. They called this sort of improvised group song a *quodlibet* ["what you please"] and not only laughed heartily at it themselves but occasioned equally hearty . . . laughter in all who heard them."

In some German towns the Bachs monopolized music to the point where their very name became synonymous with "musician," and there were even municipal decrees referring to "the local privileged band of town musicians, or so-called Bachs." The name, incidentally, appears to have been pronounced bäkh, with a broad *a*, and may have been derived from *Backofen*, a baker's oven, rather than *Bach*, a brook. Sebastian's father, Johann Ambrosius, was a town musician in Eisenach—a respected but not too successful trumpeter whose income, as he complained to his employers in 1684, was insufficient to support his wife, seven children, and the three apprentices who lived with them. His wife, Elisabeth, whose maiden name was Lämmerhirt, was the daughter of a prosperous furrier in Erfurt; Johann Sebastian, born when she was forty-one, was the eighth and last of her children. The date of Bach's birth, usually given as March 21, 1685, should be moved up to March 31 on the Gregorian calendar, which was not adopted in Protestant Germany until 1701.

Very little is known about his early years. Presumably it was Ambrosius who introduced him to the violin and viola, and there was an uncle, Johann Christoph Bach, Eisenach's leading organist, who may have started him on the organ. But both parents died before the boy was ten years old, and he was sent to live with his oldest brother, then twenty-four, who was church organist in nearby Ohrdruf. The town was well known for its Latin school, and Bach made rapid progress both in the classics and in clavier playing. According to a brief memoir published years later by Bach's son Philipp Emmanuel and his pupil Friedrich Agricola, he was so eager to learn that he would steal out of bed at night and secretly copy out keyboard pieces from his brother's *verboten* Froberger and Pachelbel manuscripts. "Since he was not even in possession of a candle he had to copy the music by moonlight," runs the account. "In six months' time these musical spoils were in his hands. He was trying eagerly and secretly to put them to use when his brother found out about it and, showing no mercy, took away the copy he had made with such pains." Whatever else it may have been, it was not a permissive education. But heredity and environment were both called upon to do their utmost in this case, and it is difficult to decide whether genes or finger exercises should get the lion's share of the credit.

At fifteen Bach left his foster home and became self-supporting as a chorister and scholarship student at the Michaels Gymnasium in Lüneburg, a boys' academy that stressed music, Lutheran theology, and classical languages. Some three years as school organist taught him a great deal about the Protestant choral tradition and gave him a chance to hear some of northern Germany's best organists. He was quite willing to walk the thirty miles to Hamburg in order to attend recitals by the eighty-year-old Adam Reinken, renowned for his organ improvisations. And there were side trips to the Huguenot colony at the nearby court of Celle, where he was introduced to the latest fashions in French music.

In August, 1703, Bach gave a trial performance on the organ of the New Church at Arnstadt, a town that had employed Bachs for four generations.



MUSIC DIVISION, N.Y.P.L. AT LINCOLN CENTER

In this organ, of the sort for which Bach wrote his masterpieces, hand-pumped bellows at left force air to pipes under the keyboard. The finger keys release air to the small pipes at top center for the higher tones; pedals control the low tones produced through the pipes at right.

His playing made such an impression on the consistory that they offered him, at eighteen, a higher salary than any of his predecessors—fifty taler a year (half of it derived from the local beer tax), plus another thirty for his room and board. He was to preside over a new two-manual organ of twenty-five registers, which he was contractually obligated to "keep a watchful eye upon and take faithful care of."

The local choirboys turned out to be rather more difficult to watch over; some of them were older and tougher than their new conductor. The Arnstadt town records for 1705 mention a street brawl between Bach and a chorister named Geyersbach, who took up the cudgels to avenge the insults that Bach had heaped on his head during rehearsals. In the course of an official inquiry into the incident, Bach was accused of having used the terrible epithet *Zippelfagottist*—an old-goat bassoonist—and of having earned "the reputation of not getting along with the students." This was to be a recurrent leitmotif in Bach's career: he always had trouble dealing with people, and his psychological stance was the defensive posture of a man at odds with the world. There is another Arnstadt complaint that gives us some insight into his character (records of complaints, petitions, and disputes are virtually the only Bach documents that have survived): "The organist Bach had previously played rather too long, but after his attention had been drawn to it by the Superintendent, he had at once fallen into the other extreme and made it too short."

Setting the final seal on his apprenticeship, Bach undertook a 250-mile pilgrimage to Lübeck "in order to learn one thing or another about his art" from the sixty-eight-year-old Dietrich Buxtehude, then the foremost German organist-composer. Buxtehude's example encouraged Bach to pursue his own spectacular way as a composer, and there was so much to learn that he stretched his four weeks' leave to four months, earning another official reprimand when he returned to Arnstadt.

At the same time, he was reproached for having "made many curious *variationes* in the chorale and mixed many strange tones into it, so that the congregation has become confused by it." These strange tones, nowadays, are among the things we most admire in Bach's work; they account for the dissonances and modulations that appear when one least expects them, turning a melody that is merely pretty into one that is profoundly beautiful. Their function is inexpressible in words, but it is these tones that set Bach apart from his contemporaries. Handel, for instance, is a far more conventional and well-behaved composer. Harmonic orthodoxy usually prevails in his music, and as Igor Stravinsky says, with Handel one never experiences "the wonderful jolts, the sudden modulations, the unexpected harmonic changes, the deceptive cadences that are the joy of every Bach cantata . . ."

Before Bach left Arnstadt the consistory had cause to register another complaint: ". . . by what right had he recently invited the strange maiden [*die frembde Jungfer*] into the organ gallery and let her make music there?" Presumably the maiden in question was his second cousin Maria Barbara, youngest daughter of the organist Michael Bach. She became Sebastian's wife in October, 1707, when he had moved on to a more promising post at Mühlhausen, thirty-five miles away. Though he was well paid (eighty-five guldens in money, fifty-four bushels of grain, two cords of wood, and a wagonload of faggots), they stayed there for only a year. Not only was the Mühlhausen organ badly in need of repair, but the congregation was irreparably split over the issue of Pietism, a powerful reform movement within the Lutheran Church. The Pietists considered the more elaborate forms of church music a vain and worldly distraction from worship, tantamount to "setting the world on a level with the Saviour." For orthodox Lutherans, on the other hand, music was a means "to proclaim the glory of God and to declare our obedience and the gratitude of our hearts." It was precisely this article of faith that shaped Bach's whole view of the world. For a professional church musician—and composer of the most elaborately ceremonious church music ever written—it could hardly have been otherwise. His attitude is expressed in the initials SDG *(Soli Deo Gloria),* which customarily adorn his manuscripts. The dedication of his *Little Organ Book* presents the same idea in verse, though not with-

out the note of pragmatism that usually accompanies Bach's affairs like a well-grounded figured bass: "For God alone, in exaltation,/And for my neighbor's education."

In his Mühlhausen letter of resignation Bach mentioned the *Verdriesslichkeit* (vexation) that had prevented him from "working toward my goal, namely a well-regulated church music." Instead, he found a new post as court organist and chamber musician to the Duke of Weimar (150 florins a year to start, plus firewood and coal allowances). His new employer was a somber but knowledgeable amateur musician who had considerably more understanding for Bach's gifts. "The pleasure his Grace took in his playing fired him with the desire to try everything possible in the art of playing the organ," says Philipp Emmanuel. "Here, too, he composed most of his organ works." They are works of extraordinary power that soar to lengths greater than anyone had ever attempted to span with an arch of counterpoint. Straining the limits of the old organ forms, they also venture far beyond the parochial boundaries of German music: musical life at Weimar exposed him, for the first time, to the Aeolian breezes blowing up from Italy. Suddenly his angular, workmanlike fugue themes, modeled on Buxtehude & Co., gave way to more lyric, expressive melodies patterned on Legrenzi, Corelli, Vivaldi, and Albinoni.

It is their songlike themes that Bach admired, copied, and cultivated; the contrapuntal working-out was strictly his own, for in this department he now had no mortal equal anywhere in the musical world. "You must be either Sebastian Bach or an angel from heaven," was the startled reaction of the local organist when Bach paid an incognito visit to a village church and launched into one of his breath-taking improvisations. His works brought north and south into perfect equilibrium by spinning out a tracery of independent melodies over a solid harmonic bass. The result is logic-*cum*-

Bach spent twenty-seven years in and around this square in Leipzig as teacher and music director at St. Thomas's church and school.

fantasy, the German toccata (touch-piece) married to the Italian aria (sing-piece). It accounts for the marvelous musical paradox that Bach the Great Contrapuntalist is also Bach the Great Harmonist. When modern jazz composers steal from him, what they covet most are the harmonies.

His fame as "the greatest organ and harpsichord player we have ever seen" spread beyond Weimar to cities like Dresden and Halle, which invited him to give recitals and to serve as an official examiner of newly constructed organs. "When John Seb. Bach seated himself at the organ," writes J. N. Forkel, summarizing the reports of those who had heard him improvise, "he would choose some one theme and develop it in the various forms of organ composition, but in such a way that his material was always based on this subject, even when he played uninterruptedly for two hours or more. First he would use this theme for a prelude and fugue with full organ. Then he would display his art of using the stops, for a trio, quartet, etc., still on the same subject. Afterward followed a chorale, whose melody was again playfully surrounded . . . with a fugue on the full organ, in which either another treatment of only the first subject might predominate, or, depending on its nature, one or two other subjects might be mixed with it." When Bach played like this on a visit to Hamburg in 1720, improvising for half an hour on the chorale *By the Waters of Babylon,* the ninety-seven-year-old Reinken said to him: "I thought this art was dead, but I see that it still lives, in you."

Certainly these accomplishments were not unappreciated at Weimar. In addition to regular salary increases, Bach received the title of concertmeister of the ducal orchestra—described in one report as "sixteen well-disciplined musicians clad in Hungarian haiduk uniforms." But there must have been some unspoken frictions and frustrations. After 1716, when Bach was passed over for promotion to the vacant post of court music director, there was no keeping him at Weimar. During the following summer he quietly arranged to take a new post as music director to the Prince of Anhalt-Cöthen, an intensely musical young relative of the Saxe-Weimars.

This time the transition was bungled, and the whole nine-year Weimar episode ended on a sour note. In the court archives for 1717 there is the brief entry: "On November 6, the former Concertmeister and organist Bach was confined to the County Judge's place of detention on account of the stiff-necked obstinacy with which he expressed his insistence on being dismissed, and finally on December 2 was freed from arrest with notice of his unfavorable discharge." It was a forceful reminder, if he needed it, that the feudal system in Germany had not yet breathed its last.

Cöthen was only sixty miles away, but the musical climate at its comfortable little palace was immeasurably sunnier than that at Weimar. Since the ruling family belonged to the Calvinist Reformed Church, which frowned on anything more than hymn singing, Bach had no ecclesiastical duties to perform. Prince Leopold of Anhalt-Cöthen was all the more passionately devoted to instrumental music, however, and tried to compensate for the diminutive size of his realm by maintaining one of the best orchestras in the country. Not only did the prince

himself play the violin, harpsichord, and viola da gamba; he also had the taste and discernment to pay his new *Capellmeister* four hundred taler a year —a salary equal to that of his court marshal.

The Cöthen orchestra consisted of seventeen players, many of them of solo caliber, and it was for them that Bach proceeded to write his great instrumental suites, concertos, and sonatas. The essence of music making at Cöthen was distilled in the six *Brandenburg Concertos,* so called because they were dedicated to the Margrave Christian Ludwig of Brandenburg, one of Prince Leopold's friends. Modeled on the Italian *concerto grosso* form, the *Brandenburgs* were designed to take maximum advantage of the virtuoso players at Bach's disposal in the Cöthen orchestra: the second concerto, for example, focuses on a solo group of flute, oboe, violin, and trumpet, who engage in animated conversation among themselves and with the main body of strings.

In July, 1720, as Philipp Emmanuel had cause to recall, "after thirteen years of happy marriage with his first wife, Bach had the misfortune, upon his return to Cöthen from a journey with his prince to Carlsbad, of finding her dead and buried, although he had left her hale and hearty on his departure. The news that she had been ill and died reached him only when he entered his own house." Little more than a year later Bach remarried. He was then thirty-six; his bride was the twenty-one-year-old Anna Magdalena Wülken, daughter of a trumpeter and herself a professional singer. For several years she continued to appear as a court singer while also taking charge of the growing Bach household.

The matter of Bach's twenty children deserves some clarification. His first wife had borne him seven children, of whom four survived. Anna Magdalena presented him with thirteen more, but seven of them died in childhood. Eventually, five of Bach's sons became professional musicians. Wilhelm Friedemann, "the Halle Bach," Carl Philipp Emmanuel, "the Berlin Bach," and Gottfried Bernard, a gifted organist who died at twenty-four, were Maria Barbara's sons. Among those of the second marriage were Christoph Friedrich, "the Bückeburg Bach," and Johann Christian, "the London Bach," who dandled Mozart on his knee. Another of Anna Magdalena's sons is credited with a great talent for music, but like one of Sebastian's aunts, he was mentally retarded. Little is known about the four daughters except that three never married; the second oldest, Elisabeth, became the wife of Bach's pupil Christoph Altnikol.

It was for the older children's benefit, as well as for his young wife, that Bach put together his Cöthen collections of teaching pieces, ranging from the simplest first-grade exercises to the most difficult bravura pieces. In setting down his course of lessons for Wilhelm Friedemann, Bach carefully spelled out not only the technical but also the moral bases of the good musical life:

> The figured bass is the most perfect foundation of music. It is executed with two hands: the left hand plays the prescribed notes, and the right hand adds consonances and dissonances in order that the whole shall produce an agreeable harmony for the honor of God and the proper delight of the soul. Like all music, the figured bass has no other purpose than the glory of God and the refreshment of the spirit: otherwise it is not true music, but only a devilish prattle and droning on.

With the *Two-* and *Three-Part Inventions* Friedemann was taught how to "play clearly in two voices" and in three; above all "to arrive at a singing *cantable* style of playing." Having mastered that much—and some of the *Inventions* are themselves virtuoso pieces —he could go on to what has become the fountainhead of keyboard technique, *The Well-Tempered Clavier.* Frédéric Chopin called it "the highest and best school" of pianism, but it is also something more than that: the practical application of a kind of unified field theory. As the title indicates, *The Well-Tempered Clavier* demonstrates the advantages of the so-called equal-temperament method of tuning a keyboard instrument. In the older meantone system, which prevailed before the introduction of equal temperament, only half a dozen major keys and three minor keys could be used without sounding out of tune. A well-tempered harpsichord, however, tuned (just as pianos are today) with the octave divided into twelve equal semitones, renders each of the twenty-four major and minor keys equally accessible, so that all modulations are comfortably in tune. Bach's guiding purpose, then, was to explore the acoustic and, if you like, psychological character of tonality by writing a prelude and a fugue in each of the twenty-four major and minor keys.

In 1723, a year after completing Book I of the *Clavier* (Book II dates from 1744), he accepted the position of cantor, or music director, at St. Thomas's School in Leipzig. It was an unfortunate decision. One of the more fascinating Bach documents on record is the letter he sent to his boyhood friend Georg Erdmann in 1730, explaining not only why he had made the change but why he now had cause to regret it. "You are acquainted with the *fata* of my life from my youth onwards," he writes in his magisterial mixture of German and Latin, "up to the *mutation* which brought me as Capellmeister to Cöthen."

> There I had a gracious Prince who both loved and understood music, and in whose service I intended to spend the rest of my life. But it transpired that the said *Serenissimus* should marry a princess of Berenburg, and that the impression should arise that the musical *Inclination* of the said Prince was becoming somewhat lukewarm, since the new Princess seemed to be an *amusa* [unmusical one], so it pleased God that I should be called hither as *Directore Musices* and *Cantore* at the Thomas Schule. Though at first, indeed, it did not seem at all proper for me to change from Capellmeister to a Cantor. Wherefore, then, I

postponed my *Resolution* for a quarter of a year, but this *Station* was described to me as so *favorable* that in the end (particularly since my sons seemed inclined to become *studiosi*) I cast my lot in the name of God, betook myself to Leipzig, gave my trial performance, and then undertook the *mutation*.

Here I am still in service, by God's will, but since (1) I find that this position is not nearly as lucrative as it had been described to me; (2) I have failed to obtain many of the *Accidentia* [incidental fees] pertaining to this *Station;* (3) the place is very expensive; and (4) the authorities are peculiar and not very devoted to music, so that I must live amid almost constant vexation, envy and persecution—wherefore I shall be forced, with God's help, to seek my Fortune elsewhere. Should your Honor know of or find a *convenable station* in your city [Danzig] for an old and faithful servant, I ask you most humbly to put in a gracious word of *Recommendation* for me . . . My situation here is worth about 700 taler, and when there are more corpses than *ordinairement*, the funeral fees rise in proportion. But when a healthy wind blows they fall accordingly; last year, for example, I lost over 100 taler that would ordinarily have come in from corpse fees *(Leichen accidentia)* . . .

Since a more "convenable station" never materialized, Bach remained in Leipzig to the end of his days, a period of twenty-seven years, in which he became known to the town council as the "incorrigible" cantor. The record of these last three decades presents the unedifying spectacle of a great artist beset by pettifogging politicians intent on making his life as miserable as possible. His principal duties were to direct the music of four Leipzig churches and to superintend the training of St. Thomas's choirboys. By modern standards his musical resources were anything but adequate. In one of his reports to the authorities he drew up a list of those choristers who were "usable," those who needed further training, and those, alas, who were not musicians at all. The final balance sheet: seventeen usable, twenty potentially usable, seventeen unfit.

Ideally, Bach said, he would like a chorus of sixteen trained singers for each church and an orchestra of at least eighteen men—eleven strings, two oboes, bassoon, three trumpets, and timpani—to accompany the cantata of the week, which was performed in only one church at a time. In 1730, however, he had but eight professional players at his disposal, a terrible comedown from Cöthen: "four Town Pipers, three professional fiddlers and one apprentice. Modesty forbids me to speak at all truthfully about their qualities and musical knowledge. But it must be remembered that they are partly *emeriti* and partly not at all in such *exercitio* as they should be." That meant he had to fill out the orchestra with students from the University of Leipzig, a task made all the more difficult by the council's refusal to pay these volunteers their customary fee.

Though the proportion of fit versus unfit may have changed slightly over the years, these were essentially the forces that Bach had to work with in Leipzig, and for whom he composed a seemingly endless stream of choral masterpieces—266 of his 295 church cantatas (only two-thirds of which have been preserved), the *Magnificat* in D minor, the Mass in B minor written for the Catholic king of Saxony and Poland, and the two great settings of the Crucifixion narrative, the *Saint Matthew Passion* and the *Saint John Passion.*

A friend of Bach's, Johann Matthias Gesner, described the scene at St. Thomas's Church when its famous cantor officiated at the organ: ". . . if you could see Bach playing with both hands and all his fingers on an instrument that seems to combine many lyres in one—the organ of organs—running over it hither and thither with both hands and with swiftest motion of his feet, eliciting many varied passages of sounds, diverse and yet unified. If you could see him . . . not only playing his own part but equally watchful of all the performers to the number of thirty or forty, calling this one to attention by a nod, another by a stamp of the foot, the third by threatening finger to rhythm and beat. . . . He, doing the most difficult part, can discern any mistake and the defaulter, and keep everyone right. Though I am a great admirer of the ancients as a rule, yet I think that this Bach of mine . . . combines many Orpheuses and twenty Arions in one."

Over the years, however, Bach in his organ loft came to be more and more isolated from the mainstream of music in that intensely fashion-conscious era, when everything operatic was in vogue and fugues had already gone out of style. Most younger musicians respected him as a virtuoso, but considered his music obsolete. "This great man would be the admiration of whole nations if he had more charm," wrote a Hamburg critic in 1737, "and if he did not diminish the natural quality of his pieces with his turgid and confused style, darkening their beauty with an all-too-excessive art . . ."

Although friends rushed to his defense, there was no denying that Bach at fifty was the last of the vanishing race of great contrapuntalists. The farther he stood apart from the galant music of that transitional epoch, the more urgently he must have felt the need to preserve and systematize his matchless knowledge of polyphony. As a result, the works that he composed, engraved, and published during the 1740's constitute a great encyclopedia of counterpoint. In the *Goldberg Variations,* ostensibly written to amuse Count Kayserling on sleepless nights, a simple household tune is transformed into thirty variations full of cryptic ingenuities: every third one, for example, is a different sort of canon, and the climax is a *quodlibet* of the sort his relatives used to improvise at Bach conventions.

Another case study in the alchemy of counterpoint is the dazzling set of organ variations on a Christmas chorale, *Vom Himmel hoch,* that Bach presented to a Leipzig musical society in

lieu of an inaugural address: they culminate in a cascade of canons like a shower of stars. Bach's visit to Frederick the Great of Prussia in 1747 produced the *Musical Offering,* in which he explored some of the fugal possibilities of the "right Royal theme" that Frederick had suggested to him as a subject for improvisation. Then, having proved what he could do with a king's theme, he proceeded to submit one of his own to the same process. *The Art of the Fugue (Die Kunst der Fuge)* is a giant compendium of counterpoint, involving the double triumph of mathematical logic and creative imagination. Its basic subject is harnessed to a series of increasingly complex fugues and canons in order to demonstrate some of the limitless ways in which a theme could be combined, expanded, compressed, turned upside down, and run off backward.

Most of *The Art of the Fugue* was engraved under Bach's supervision. Blindness, however, prevented him from finishing the great triple (or quadruple) fugue that introduces his signature theme, B-A-C-H (a musical pun that makes sense only in German notation; in our system the notes are B flat-A-C-B). Thus the last and most difficult *contrapunctus* of all breaks off in mid-flight at the 239th measure.

In the winter of 1749 Bach became totally blind, but with the help of his son-in-law, Altnikol, he was able to go on revising some of his earlier choral fantasias. When he felt that death was approaching, he dictated to Altnikol a choral prelude on the hymn *Wenn wir in höchsten Nöten seyn* ("When We Are in Greatest Need"), but as a superscription he chose the first line of another stanza: *Vor deinen Thron tret' ich hiemit* ("With This I Step before Thy Throne"). He died, after suffering a stroke, in his sixty-sixth year, on July 28, 1750. According to a Leipzig newspaper, he was "uncommonly mourned by all true connoisseurs of music," but the town council merely used the occasion to read one last Bach-criticism into the record.

Though there were four sons to carry on the tradition, Bach's music quickly dropped out of circulation. The engraved plates for *The Art of the Fugue,* of which only thirty copies had been sold, were disposed of as scrap metal in 1756. Dozens of Bach manuscripts passed into the hands of junk dealers and were never seen again. Others remained in court archives and church libraries until they were rediscovered during the next century. The great Bach Revival began in earnest after Felix Mendelssohn produced the *St. Matthew Passion* from a manuscript bought by one of his teachers "as waste paper at the auction of the goods of a deceased cheesemonger." But even before that, *The Well-Tempered Clavier* had done its work and had become the passkey to Parnassus for all the great keyboard composers of the new century.

MUSIC DIVISION, N.Y.P.L. AT LINCOLN CENTER

Choir, organ, and a small orchestra combined in Bach's day to render the cantatas he composed for Sunday morning services.

Beethoven is first mentioned in dispatches as a Bach player; at the age of twelve he had already learned most of the *Clavier* (from a manuscript copy), and later, in Vienna, he liked to conclude chamber-music evenings with half a dozen Bach fugues "by way of final prayer." The young Liszt could play all the fugues from memory and is said to have mastered the knack of transposing them, on demand, into any other key. Chopin grew up playing the Clavier and never gave up the habit: "Before a concert I stay at home for two weeks playing nothing but Bach." Schumann composed a set of fugues on B-A-C-H in tribute to "the demigod of our art." And the twelve-year-old Mendelssohn played well-tempered fugues for the aged Goethe, who wrote that Bach sounded like "the Eternal Harmony conversing with itself, as it may have done in God's bosom before the creation of the world."

But the earliest of "the children of Bach," as Verdi called them, was also the one to benefit most from his legacy. Wolfgang Amadeus Mozart had heard of Bach only by hearsay until he was introduced to some of the preludes and fugues by Baron van Swieten, a Dutch music-lover living in Vienna. He began to make his own collection of Bach pieces and to transcribe some of them for string quartet, a labor of love that bore fruit in the poignant counterpoint of his own later works. A visit to St. Thomas's Church in Leipzig gave him his only opportunity to hear one of Bach's choral works. "The choir surprised Mozart by performing the motet for double chorus, *Singet dem Herrn,*" wrote a journalist who was present. "As soon as the choir had sung a few bars, Mozart sat up, startled . . . 'What is this?' And now his whole soul seemed to be in his ears. 'Now here is something one can learn from!' he shouted when the song ended." He asked to see more of Bach's works, and "it was a pleasure to see how eagerly Mozart sat down with the sheets of music all around him, held in both hands, on his knees, on the nearest chairs. Forgetting everything else, he did not get up again until he had looked through everything of Bach's that was there. He asked for copies . . ."

Frederic V. Grunfeld has written for HORIZON *on Berlioz (Autumn, 1970) and on the Troubadours (Summer, 1970).*

THE SUKHOMLINOV EFFECT

Destined perhaps to take its place
alongside the Peter Principle and Parkinson's Law,
the Sukhomlinov Effect states
that "in war victory goes to those armies whose leaders'
uniforms are least impressive"

By ROGER A. BEAUMONT *and* BERNARD J. JAMES

Both Prussian (left) and French (right) horsemen rode high in 1812, but the latters' showier garb would finally doom them at Waterloo.

Below, plain winners alternate with fancy losers of World War II. Loser Adolf Hitler may seem an exception in his simple uniform, but in fact he was very much a winner when this photograph was taken in 1940, having just heard that France had given up the struggle and sued for peace.

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WIDE WORLD

MUSSOLINI

MARGARET BOURKE-WHITE © TIME INC

STALIN

PHOTOWORLD

HITLER

U.S. ARMY; RIGHT: PHOTOREPORTERS

MONTGOMERY

ROMMEL

HORSEMEN: ANNE S. K. BROWN COLL., RIGHT: IMPERIAL WAR MUSEUM, LONDON

Men have long scoffed at women as slaves of fashion. Torrents of ink have flowed into jeremiads on the ladies' alleged inability to resist the siren songs of designers and garment-trade hucksters. These charges have been trumpeted far and wide, for in those parts of the world in which theoreticians can make a living by generalizing, far more attention is paid to women's bodies than to men's.

Occasionally, journalists and social historians have noted that men, too, are subject to the whims of fashion, but the general fixation on women's thralldom to sartorial embellishment has obscured the importance of clothes in designating male social class, corporate status, and aspiration. Even less has been said about the meaning of uniforms. Many books have appeared with color plates showing uniforms past and present, but few of these have attempted to appraise the role of uniforms as social indicators.

When Shaw suggested that the coming of khaki would end the fashionableness of war, he failed to foresee that the human yen for ornamentation would soon brighten up the drabbest coveralls and fatigues with totemic trappings—badges, ribbons, medals, and insignia of all kinds. Shaw was, after all, the product of an age in which the gaudy red coat of the British foot soldier betokened authority over an entire quarter of the globe, "dominion over palm and pine."

V. A. Sukhomlinov of Russia (left) came to World War I accoutred for defeat.

In view of the brouhaha about the new White House uniforms some months back, the time may have come to review the whole matter, and to consider, after weighing the implications of the Sukhomlinov Effect, whether men are not, in fact, the most pitiable slaves of fashion.

Simply stated, the Sukhomlinov Effect stipulates that in war victory goes to those armies whose leaders' uniforms are least impressive. In other words, the more elaborate the plumage worn—the more Sukhomlinovian the appearance of the commander and his officers—the more inevitable the defeat.

After the six-day "lightning war" of 1967 Israeli general Ariel Sharon ruefully observed that "our soldiers are not very well dressed, and I'm sometimes ashamed at what the prisoners of war must think of us." Writing about these same soldiers, Murray Sayle of *The New York Times* reported, "Some of them wear uniforms and steel helmets, while others have odds and ends of civilian clothing mixed with Jewish skullcaps. Many sport luxurious beards. There are no salutes and few badges of rank." Needless to say, the Arab forces —Egyptians, Jordanians, and Syrians —were more conventionally fitted out.

Similar discrepancies between victors and vanquished in terms of appearance had been noted, of course, long before 1967. Pierre d'Harcourt had this to say about the Americans who liberated German concentration camps in 1945: "The SS marched out of Buchenwald as though rehearsing for a victory parade on the Wilhelmstrasse. The Americans came in looking like tramps. They seemed to wear any garment that took their fancy . . . It was impossible to distinguish officers from men." Such informality is not a new thing among Americans, and the record suggests that Bill Mauldin's Willie and Joe had many forerunners. A Mexican official observed in 1847 that the U.S. troops that took Mexico City looked more "like brigands than soldiers." American indifference to image in that war was personified by General Zachary Taylor—Old Rough-and-Ready—who at Palo Alto slouched casually in his saddle in a drab field uniform while his opponent, Mariano Arista, attired in the field finery of a

CARL MYDANS, *Life* MAGAZINE © TIME INC.

MacArthur

WIDE WORLD

Tojo

UNITED PRESS INTERNATIONAL

Churchill

R. MANVELL AND H. FRAENKEL, *Goering*, RIGHT: U.S. ARMY

Goering

Eisenhower

Drab Fidel Castro just had to defeat . . .

Mexican general, struck martial poses. Taylor won that fight, of course, as those aware of the Sukhomlinov Effect could have predicted.

The Effect is a constant in great surrender scenes. Grant appears at Appomattox in a worn, dusty blouse and trousers, Lee in his finest gold and gray, immaculately groomed. MacArthur, accepting the Japanese surrender on the deck of the battleship *Missouri,* comes to the ceremonies tieless, open-collared, and without decorations, while the Japanese officers and officials are meticulously fitted out in top hats and cutaway coats or in sashes and jackboots, equipped with aiguillettes and swords.

History is replete with similar examples: imperial Russia's General Sukhomlinov and Fascist Italy's Mussolini, *Il Duce,* each posturing in glittering swank on the eve of tragicomic disasters; the self-caricaturing Reichsmarshal Goering in dress whites or silver grays, bedecked with medals and gilt, ordering his pilots to their doom at the hands of enemy airmen in plain blue-gray; Montgomery of Alamein in a shabby sweater, Grant-like, versus baton-wielding Rommel sporting a smart leather trench coat and goggles; Churchill in his starkly simple siren suit; Eisenhower in his modest jacket; Mao Tse-tung in peasant blouse – plain winners and fancy losers.

When a number of other cases are considered, a singular regularity becomes apparent: a law emerges that its formulators have named the Sukhomlinov Effect after the venal and incompetent, but sartorially flamboyant, czarist war minister of 1914. That the Effect has held true with remarkable consistency in recent historical times is evident from the table at right.

Naturally, the Effect varies from case to case. In Germany's two-front campaign in World War I, for instance, victory came on the eastern front, against forces prepared for war by Sukhomlinov himself, while defeat occurred on the western front, where Foch, Haig, and later Pershing represented a partial democratization of military dress among the Allied commanders. In World War II the Germans on the eastern front ultimately took a shellacking from Russian forces, the uniforms of whose officers had been partially stripped of the tinsel of Sukhomlinov's day. Interestingly, the Nazi SS units, with their special finery, suffered more casualties than the slightly less dressy *Wehrmacht* units.

The Effect can likewise be applied to the contemporary scene, though caution is certainly necessary. That the new Russian navy was not forged in the crucible of war may, for instance, explain the glitter of Admiral Gorchakov. It may also indicate that the Soviet navy is essentially designed for peacetime image-projection rather than a showdown with NATO forces.

Extraneous factors can, of course, alter a given situation in such a way as to minimize the Sukhomlinov Effect, or negate it altogether. Thus, a Russian mutiny on the eastern front in 1917 muddied up the previously clear-cut relationship between the imperial officers' ornate attire and their battlefield disasters. And as the Russo-Finnish conflict makes clear, there is a relationship between higher and lower levels of command: Soviet ineptitude seems to have been so great in the early phases of the encounter that it offset any countertendency. While the Finnish field units wore very plain uniforms, the elaborate costume of Marshal Mannerheim may have canceled out this advantage. In the Spanish Civil War the presence in both camps of numerous foreigners, many in the uniform of their national forces, obscured dress-to-effectiveness relationships that might otherwise have been easier to discern.

Vietnam is a case where similar factors are at work. The data so far suggests that black pajamas and insignia-free tunics, sun helmets and tennis

THE SUKHOMLINOV EFFECT

CONFLICT	OFFICERS' FIELD UNIFORMS	
	SIMPLER UNIFORMS – WINNERS	MORE ORNATE UNIFORMS – LOSERS
English Civil War	New Model	Royalists
American Revolution	Colonists	British
French Revolutionary Wars	French	Austrians–Prussians
Early Napoleonic Wars	French	Austrians–Russians–Prussians
Waterloo	British–Prussians	French
War of 1812	*Stalemate: officers of both sides well turned out*	
Mexican War	Americans	Mexicans
U.S. Civil War	Federals	Confederates
Franco-Prussian War	Germans	French
Spanish-American War	Americans	Spaniards
World War I:		
Western Front	Allies	Germans
Eastern Front	Germans	Russians
Irish Civil War	Irish Republican Army	Black and Tans, Cadets, *et al.*
Russian Civil War	Reds	Whites
Spanish Civil War	*Falangists' victory explained in text*	
Russo-Finnish War	*Russian victory explained in text*	
World War II:		
Europe	British–Americans–Russians	Germans–Italians
Pacific	Americans	Japanese
Chinese Civil War	Communists	Nationalists
Korean War	*Stalemate: officers on both sides drably clothed*	
Israeli-Arab Wars	Israelis	Arabs
First Indochina War	Viet Minh	French
Cuban Revolution	Castroites	Batistaites
Algerian War	Fellagha	French
Vietnam War	*Data incomplete*	

shoes, won out over the kepis, red pompons, and other distinctive and colorful elements of French military and naval attire. The intervention of the American forces, with their simpler field uniforms, helped to skew the Sukhomlinovian parameters at a crucial juncture. It is interesting to note, however, that just before the Tet Offensive of 1968 General Westmoreland was voted one of the best-dressed men by a group of American fashion experts—a fact that caused Sukhomlinovian theorists much anxiety. The Nigerian struggle also demonstrated the Sukhomlinov Effect at work. The leaders on both sides were Sandhurst-style peas in a pod, but Colonel Ojukwu's conspicuous tendency to vary from the norm in matters of dress should have made the outcome obvious from the start.

Another variable influencing the Sukhomlinov Effect is that of pure idiosyncrasy. Certain successful commanders, like General Patton, have gone counter to the formula for success followed by Cromwell, Wellington, Eisenhower, and MacArthur. Patton was, for example, given to affecting props like ivory-handled pistols and a chrome-plated battle helmet. Such elements, however, clearly lie outside the area of general style. Patton insisted on rigid adherence to military standards of dress on the part of his troops, and his own flamboyance may well have been a calculated effort to trick enemy commanders into thinking he was unbalanced, a dangerous, unpredictable foe capable of any kind of wild, daring, and reckless behavior.

The sources of the Sukhomlinov Effect can perhaps be understood most readily if we turn to the basic laws governing animal behavior. The "niche theory" of ecologists is particularly illuminating, bringing the Effect, as it does, fully into line with the strictures of present-day behavioral science.

Niche theory asserts, essentially, that when an environment is stable, when food is abundant, when the sun is warm and life is good, there is leisure to specialize and to indulge the impulse toward the rococo that lies at the very heart of evolution. Bird life provides excellent examples. The gorgeous raiment of such tropical species as the quetzal is truly Sukhomlinovian, as are the brightly colored breasts, erectile ruffs, wattles, plumes, and dazzling display rituals of many other tropical birds. In the lush environment of the tropics, these elaborations have a function and can often make the difference between success and failure in the contest for social position. Such fops as the mandarin drake, with his striking Goering-like display of plumage, are the product of this way of life.

A less balmy climate and a less certain environment, however, encourage the development of generalist talents, and refinements of costume become irrelevant, even suicidal. Moving from the tropics to the harsh and difficult northern latitudes, a wide food spectrum—that is, undiscriminating taste—is found to be the hallmark of survival. This also explains why, as we head north, we encounter fifth-column tacticians like the cowbird and increasing numbers of such dreary-looking but crafty generalists as the starling, sparrow, and crow.

All life, on all levels, is, in fact, a competitive struggle; and what holds true for birds and men with regard to ornamentation in relation to function and environment likewise applies to other genera, notably aquatic creatures, from the smallest polychromatic inhabitant of a coral reef to the mightiest monochromatic whale.

And when we turn back once again to the stressful environment of warfare, we find, in modern history, all too many instances of the disastrous outworkings of the Sukhomlinov Effect. In World War I, for instance, the French infantry did not abandon its brilliant red pantaloons until 1915, well into the era of the machine gun; in the preceding Battles of the Frontier, thousands of this colorful species had been slaughtered in a single day. Natural selection finally produced a new uniform of dull blue-gray, a color better suited to the "crypticity requirements," as ecologists would say, of fighting a war on the ground with high-speed weapons of comparatively long range.

The conclusions to be drawn from all this are, or at least should be, plain enough. But the evidence, as we have said, is not yet all in. It would therefore be premature, at this juncture, to call for sweeping changes in Defense Department policy on the basis of the new knowledge our research has brought to light. Even so, certain stopgap measures would definitely seem called for. One urgently needed step is the recruitment and establishment of a dedicated *corps de tailleurs,* whose members could ceaselessly patrol the ateliers of all suppliers of military uniforms, vigilantly snipping away ornamentation. A similar civilian group might simultaneously exert a purifying influence on the foppish proclivities of clothing designers. Certainly the cost of such measures would be modest, and the reward in terms of national security incalculable. One can only hope that these suggestions will not be lost upon decision makers in high places.

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WIDE WORLD

. . . natty, flashy Fulgencio Batista.

CARÊME ou la crème de la crème

Marie-Antoine Carême was France's most distinguished classical architect—in spun sugar, pastry, and nougat

By MORRIS BISHOP

On August 4, 1944, General Patton's Third Army—*cuius pars minima fui*—entered Rennes in Brittany, on the heels of the departing Germans. That evening a group of us dined in a small restaurant, superlatively well, despite the lack of supplies, service, and electricity. We sympathized with the patron chef's troubles. "*C'est un sale métier!*" he grumbled. "Oh, say not a *métier*!" I cried. "Say rather a *profession*!" He turned to me solemnly: "*Monsïeur, c'est un apostolat!*"

The labor of a great chef is indeed an apostolate. A notable example is that of Marie-Antoine Carême.

Carême was born in 1784, in a building yard on the Paris rue du Bac, where his father worked. He was one of fifteen starved children. As he later recalled, when he was only half-grown his father took him out, bought him a good dinner, and said: "Go, my little one, go with God. There are good trades in the world. Leave us to languish as we may. Misery is our portion, and in misery we shall die. In these days fine fortunes may be made by men of wit, and wit thou hast. So go, my little one; perhaps tonight or tomorrow some good house will open to receive thee; so go, with God's gifts." The little one, abandoned in the street, never saw his parents again. He justified his father's faith; he obtained shelter and employment in a low eating house specializing in rabbit fricassee, a dish generally regarded with mistrust, its opaque sauce hiding sinister mysteries.

His gifts soon being manifest, he advanced rapidly in the culinary world. At eighteen he apprenticed himself to an illustrious pastry cook who helped supply the table of the no less illustrious M. de Talleyrand, Napoleon's minister of foreign affairs. Before long he moved into Talleyrand's kitchen as *chef de cuisine.* Master and servant were in complete accord. Talleyrand, former noble and bishop, preserved the tradition of order and refinement of the old regime and rejected the vulgar gormandizing excesses of the Directory. Carême applauded "the delicate luxury and elegant sensuality" of his table, its mingling of enlightened reason and grandeur. He gave all his free time to self-improvement, studying the works of the masters, seeking inspiration in the libraries, harmonizing the principles of architecture with those of patisserie. He enjoyed reproducing the banquets of Lucullus, Pompey, and Julius Caesar, though he regarded Roman dinners as atrociously heavy and coarse. The virtue of Roman meals was for him in the splendor of the accessories and the décor.

Carême appears above in one of his own creations of cakes covered in rose sugar, garnished with chocolate, caramel, and pistachio frostings.

It was in those days that Carême made the acquaintance of his idol, Laguipière, Napoleon's chef. To him he refers often with emotion and admiration, indeed adoration. But poor Laguipière paid the price of glory; he froze to death in his carriage during the retreat from Moscow in 1812.

The Empire collapsed in 1814; at its wake Carême was commanded to prepare a mighty banquet for the assembled rulers and despoilers. The crowned heads, the emblazoned stomachs of Europe, fought for his services. Emperor Alexander of Russia seduced him away to St. Petersburg, but he soon found the climate intolerable and the Russian way of life uncongenial. He described (later) the magnificences of Emperor Nicholas I's inaugural banquet, with floor shows, fireworks, and balloon ascensions; but the waiters, pressed for time, merely wiped off the used dishes, knives, and forks and returned them to the feasters.

Then the English Prince Regent, "Prinny," later George IV, won him with lavish gifts and carried him off to Carlton House in London and to the fantastic Oriental bloom of Brighton Pavilion. The relations of prince and artist were happy. Every morning Carême consulted his master on the subject of menus. "You will make me die of indigestion!" sighed Prinny; and Carême: "My duty is to flatter your appetite, not regulate it." The prince, however, alarmed at his mountainous expansion, prayed for a course in hygienic gastronomy. Carême reduced the condiments and spices that his master loved, substituted vegetables and bland soups, produced savor from the intrinsic qualities of simple foods, and banished for a time the royal gout. The regent's table set England an example of delicate, health-giving elegance, and the nation watched, drooling. Leftover *pâtés* were spirited away and sold for high prices in a Brighton black market.

But in less than two years Carême, depressed by England's gray skies, returned to France and left his patron to his gout and to his monumental distention. Carême devoted himself to study and publication and to the organization of gigantic official banquets. He fed the congresses of Aix-la-Chapelle, Laibach, and Verona, and took full credit for the harmony that his dinners diffused. "The culinary art," he observed,

Pavillon français de l'Exposition universelle de 1867, Salon d'honneur. Le Fumoir Royal Forbien, 1867. ALENTOURS: MARIE-ANTOINE CARÊME, Le Fumoir Royal Forbien, 1867.

Apricot marmalade and nougat

Nougat with pistachio nuts

"serves as the escort to European diplomacy." At length he found the perfect master—Baron James Rothschild, who led the beautiful life in the Paris suburb of Boulogne. Lady Morgan, author of *France in 1829–1830,* was privileged to partake of a meal at the Rothschild table. The character of the dinner, she subsequently reported, was "that it was in season, that it was up to its time, that it was in the spirit of the age, and that there was no *perruque* [outdated pedantry] in its composition, no trace of the wisdom of our ancestors in a single dish; no high-spiced sauces, no dark-brown gravies, no flavor of cayenne and allspice, no tincture of catsup and walnut pickle, no visible agency of those vulgar elements of cooking of the good old times, fire and water. Distillations of the most delicate viands, extracted in 'silver dews,' with chemical precision, 'on tepid clouds of rising steam,' formed the *fond* of all. Every meat presented its own natural aroma; every vegetable its own shade of verdure. The mayonnaise was fried in ice (like Ninon's description of [the Marquise de] Sévigné's heart), and the tempered chill of *plombière* [*i.e.*, fruited ice cream], which held the place of the eternal *fondu* and *soufflés* of our English tables, anticipated the stronger shock, and broke it, of the exquisite *avalanche,* which, with the hue and odor of fresh-gathered nectarines, satisfied every sense and dissipated every coarser flavor. With less genius than went to the composition of this dinner men have written epic poems." Lady Morgan asked to be presented to the artist. "He was a wellbred gentleman, perfectly free from pedantry; and when we had mutually complimented each other on our respective works, he bowed . . . and got into his carriage, which was waiting to take him to Paris."

Carême wrote abundantly, producing manuals of cookery and pastry making and philosophical studies of "gourmetry." He regarded his scholarly work as an effort to pay his debt to society. He addresses himself to aspiring cooks of all classes; he begins with a long study of the humble *pot-au-feu* and mounts rapidly to the world of noble epicurism, inculcating "a virile and elegant style." The chef's ultimate achievement is improvisation, in which the creative spirit may find its fulfillment. In improvisation the inspired artist must take leave of his master, as Dante took leave of Virgil. Carême illustrates his work with many drawings of his *pièces montées,* pavilions, rotundas, temples, ruins, country villas and cottages, windmills, Chinese junks, cascades of wine, all edible or potable. The summit of his work was his *Projects of Architecture,* which, if heeded, would have converted Paris and St. Petersburg into avenues of sugary palaces, stimulating to both the aesthetic and gustatory senses. He intersperses his work with exemplary anecdotes, as of the horrid arch-chancellor of the Empire, Cambacérès, who usurped the title of gourmet, but who watched over his incoming supplies, kept them too long, and served them only when they were beginning to spoil. "O profanation of gastronomy!" Again, he tells of an unhappy *premier aide de cuisine* who inadvertently left a sliver of glass amid his *petits pois.* When this contretemps was discovered, he staggered forth and fell in a faint. He was transported to the hospital, where he died, still in the flower of his youth.

A pastry incense burner

A turban of spun sugar

Carême's achievements were great. He revolutionized patisserie, creating that feather-light paste that is one of the noblest expressions of French genius. He developed and refined the monumental style of pastry making, of which the templed wedding-cake is a familiar, if vulgar, example. "With him," writes an admirer, "cuisine became a lofty art, definitive, the harmonious receptacle of savors presented in perfect forms. Carême, at the same time practitioner and scholar, wished to live the ideal, to realize the dream—in short, to materialize the absolute." This is a difficult prescription. How does one go about materializing the absolute? I presume, in the present case, by selecting the finest foods and cooking them beautifully, but also by educating the eaters. Carême imposed on his employers and their guests—whom he regarded as his own—a high seriousness, an almost sacramental mood. He tried to debar latecomers from entering the festal hall. He must have agreed with the celebrated gastronome Brillat-Savarin, who once wrote: "A true gourmand *could* not be late to dinner."

His character was that of the idealist who subordinates his life to his ideal. "He was born to be an eater," we are told. "He bore the distinctive mark of the eater, a large lower lip." Yet he forced himself to lead an abstemious life, accepting little and eschewing all strong drinks, guarding his natural equipment like an athlete or a singer. In youth he had known poverty and hunger; in maturity he gained wealth and glory, but not repose. He had his own carriage, and according to some stories, his box at the Opéra. But ever he must needs doff his finery, assume his aprons and his white toque of office, and descend to a damp, ill-lit subterranean kitchen. There he would breath the fumes of charcoal, bear the heat of the ovens and the chill of the cold room. He was not well; even in the Rothschild kitchen he was affected by coal gas. "Well, what of it?" he said. "Fewer years and more glory!"

His years were, in fact, few—only forty-eight. He suffered a long, undefined, wasting illness, but his mind was active to the last. Eminent men came to call, to discuss questions of science and the higher gastronomy. A devoted friend remembers the visit of a celebrated gardener bearing curious specimens, of a chemist with queries about the new science of canning foods, of a botanist and a phrenologist. "Some days before he expired, the left side of his body was paralyzed; he lost consciousness . . . His mind seemed to have been extinguished . . . One of his best beloved pupils wished to see him and speak with him. In distress, he put some loud questions. The dying man reopened his eyes and recognized the voice. 'It is you!' he cried. 'Thank you, my good friend. Tomorrow send me some of your fish. Yesterday the *quenelles de soles* were excellent, but your fish was not good. You don't season properly. Listen—' and he recalled the prescription in his books. He added: 'And you must shake the casserole!' His right hand, with a feeble movement above the sheet, imitated the motion he was trying to indicate. He said nothing further. A half hour later he recognized no one. All was over."

Pastry and colored sugars

Sky-blue, rose, and yellow sugar

MAO'S LONG MARCH

RENÉ BURRI — MAGNUM

On horseback, Mao Tse-tung leads his First Front Army on its epic retreat west and north to safety.

Night marches in bare feet along the Luting gorges; across the chain bridge swaying over the River Tatu; the treacherous climb over the Great Snowy Mountain; through the steaming swamps of the Great Grasslands: the Long March is modern China's leading national legend, and a crucial turning point in history

By CORRELLI BARNETT

Even in the modern age, history is not easily separated from legend, as the reminiscences of retired statesmen constantly remind us. The pasts of great nations, great religions and political movements, are all furnished with happenings that were historical turning points, and have become myths. The English have the repulse of the Danish invasions, coupled with the fable of King Alfred and the burned cakes; the rise of English sea power and Drake's voyage around the world. The French have the defeat of the invading English in the fifteenth century and the legend of Joan of Arc; the "cannonade of Valmy" in 1792 that turned back the monarchist armies and saved the French Revolution. The Americans remember the "battle" of Lexington and the winter of Valley Forge—historical events of the Revolutionary War embroidered into heroic legend. The taste for history as national epic goes back to Homer and beyond.

For the Communist Chinese, newest of great nations, the heroic age was only thirty-five years ago. For them it is the "Long March" of the Red Army, some six thousand miles from eastern China to the northwest in 1934–35, that constitutes this blend of a real historical turning point and the stuff of legend. The Long March equally supplies a key ingredient in the myth of Mao Tse-tung as a leader. As such legends go, the Long March is a catchall.

Since the Chinese documentary sources are not available, and not likely to be, Western knowledge of the Long March is based on various published accounts by Chinese Communist participants or on verbal reminiscences communicated by them to sympathetic Western authors. These accounts do not by any means closely correspond; there is, for example, no agreement about the month in which the Long March actually began. Furthermore, the disentanglement of the pudding of truth from the rich sauce of fable is made more than usually difficult because the puffing of the Long March into heroic legend has not been left merely to the spontaneous human process of mythmaking but has been the subject of a careful Communist propaganda operation.

The Long March, this migration of an army of 100,000 men and camp followers across thousands of miles of hostile territory, is hard for the modern Western mind to conceive of. However, the China of the 1930's was not a highly industrialized country, tightly meshed by an elaborate road-and-rail network, in which life in the most distant parts was dependent upon the efficient functioning of a complicated and centralized social machine. China was more like America before the Civil War, or Europe in the Middle Ages; life and authority were localized, resting on the village, on the peasant and his subsistence agriculture. As Mao Tse-tung himself wrote: "China is a vast country—'When it is dark in the east, it is light in the west; when things are dark in the south, there is still light in the north.' Hence one need not worry about lack of room for manoeuvre."

Early in the 1930's China presented an almost medieval political picture, with a central government impotent beyond a certain area, a disorderly baronage of war lords, and a civil war in progress between the Communists and the Nationalists. It was a situation of crippling weakness, which the Japanese had brilliantly and unscrupulously taken advantage of in 1931 by occupying Manchuria, seat of many of China's industrial resources. The main Communist-controlled areas lay in the eastern provinces of Anhwei (Fourth Front Army under Chang Kuo-t'ao), Kiangsi (First Front Army under Mao Tse-tung and Chu Teh), and Hunan (Second Front Army under Ho Lung).

The Chinese Soviet Republic was the consequence of a breach between the Communists and Chiang Kai-shek's Kuomintang, or Nationalist, regime. In the 1920's there had been close links between the Kuomintang and Russian Communists. Chiang himself had studied in Moscow and in 1924 brought back a Russian military adviser, General Blücher (called General Ga-lin by the Chinese), to help reorganize the Kuomintang army. Chinese Communists held posts under his regime. But in 1927 Chiang broke with the Communists and sent his Russian advisers home. And in 1927 Communist uprisings in the big cities failed or were crushed, as at Canton. However, two Communist leaders, Chu Teh and Mao Tse-tung, believed that the survival of Chinese Communism lay in guerrilla warfare in the countryside rather than in Russian-style urban revolution. In 1928 they joined forces in the mountains along the Kiangsi border. In 1931 the first All-China Congress of Soviets created a Chinese Soviet Republic with Mao Tse-tung as chairman and Chang Kuo-t'ao as vice-chairman. By 1933 the Chinese Red Army, although lightly armed, had grown into a formidable force. At this time, however, the influence of Soviet Russia, exercised through the Comintern, was strong in Chinese Communist affairs. In 1930 a group of students at Sun Yat-sen University in Moscow returned to China, together with a German Communist adviser named Otto Braun, known in China by his adopted name of Li Teh. The "Returned Students' Clique" offered a direct threat to Mao's leadership and to his theories of guerrilla war. Thus the Long March, its prelude, and its results were to constitute a decisive chapter not only in the military history of the rise of Communism in China but in its political history as well.

Chiang Kai-shek and the Kuomintang Nationalist regime then stood at the apogee of their power, backed by foreign capital and amply supplied with modern weapons, including tanks, motor transport, heavy artillery, and an air force. Chiang Kai-shek also enjoyed the advice of one of the most brilliant soldiers of the twentieth century, Hans von Seeckt, late head of the German *Reichswehr* and planner of

EASTPHOTO; MAP BY FRANCIS & SHAW

As our map shows, there was more than one Long March. The term usually refers to the six-thousand-mile trek, shown in blue, of the First Front Army, under Mao and Chu Teh, from Kiangsi to Shensi. Ho Lung's Second Front Army (in red) started from Hunan, and Chang Kuo-t'ao's Fourth Front Army (in green) from Szechwan. The latter two armies joined Mao in Yenan (above), capital of Communist China until Chiang Kai-shek's men were swept from the mainland in 1949.

such victories of the Great War as that over the Russians at Gorlice-Tarnow in 1915. It was Chiang's wish and intention finally to smash the Chinese Communists. In October, 1933, the Chinese Nationalists concentrated for their fifth great offensive, or "annihilation drive," against the Communists—some 900,000 men (400,000 of them actually in the field) and 130 operational aircraft. The Nationalist operations against the principal Communist enclaves in Kiangsi were to be the key to success. The Communist forces in that area numbered only 180,000 men, plus about 200,000 partisans and local Red Guards. In fact, the Communist forces could muster no more than 100,000 rifles, and they lacked heavy weapons of all kinds. General Hans von Seeckt was the first Western soldier to tackle the problems of revolutionary warfare in Asia, and it may be said that no one has really improved upon his strategy or achievements. He flung a cordon of field fortifications and bunkers around the Communist enclaves. Fed by a network of new roads, this noose of superior firepower was slowly and systematically drawn tighter. Seeckt thus denied the Communists the room they needed for the fluid tactics of revolutionary warfare prescribed by Mao Tse-tung. At the same time, the Moscow-indoctrinated Returned Students and their German Communist military adviser, disdaining Mao's theories of war as "guerrilla-ism," played into Seeckt's hands by attempting to defend the Communist area with orthodox positional battles. In 1934 the Nationalist forces remorselessly squeezed the Communists into a smaller and smaller area of Kiangsi. By the autumn of 1934 the Red Army had lost some sixty thousand men and faced collapse. At a conference of Red Army commanders at Juichin in September (one source prefers October or November) the decision was taken to transfer the Communist forces as a whole to a new, less vulnerable, and less accessible base area. According to one authority, the decision was in fact made on the radioed advice of Moscow. Thus the cause of the Long March was a shattering and cumulative defeat that led to the prospect of a total catastrophe—a point that the Communists prefer not to emphasize.

Concentration for the breakout took place at night, in order to evade Nationalist air searches, and in utmost haste. Within a week or so the First Front Army was grouped near Yutu in southern Kiangsi. The fighting strength numbered approximately ninety thousand; but this was more than an army in retreat, it was a whole society. So in addition to the heavily laden infantrymen, there was a long transport train, on both foot and hoof, carrying all kinds of stores, including machinery, or parts of machinery, from dismantled factories. Women made up about a tenth of the strength on the Long March.

When the Red Army marched off (one source says on October 16, 1934; another, on November 10), it must have looked more like an army of the Thirty Years' War than like a modern army: ragged men loaded with kit, a shambling line of civilian followers, thousands of horses and mules and their cursing drivers.

Because the Communists were now relieved of the necessity to defend territory, they were able to throw their entire strength against any point of the Nationalist encirclement. Nevertheless, wherever they chose to attack, they faced four successive lines of field fortifications forming a defensive zone about a hundred miles in depth. While their movement was disguised and covered by the resistance of local Red Guards, the army was directed in two columns to the southwest, marching only under cover of darkness. On the fourth night the army surprised the Nationalist defenses in Hunan and Kwantung and smashed open an escape route to the west. It was an early example of the savage night assault that was to play so large a part in Communist victories over Western, or Westernized, troops in Asia after the Second World War. Nevertheless, the First Front Army, still under the influence of the Returned Students and their German Communist military adviser, maintained too obvious a line of operations. It was only after six weeks of marching and fighting, and at a cost of a third of their numbers, that the Communists succeeded in breaking through the last of the Nationalist cordons into open country and relative safety in Kweichow province.

Mao Tse-tung's influence is probably to be seen in the consequent changes in organization and tactics. All superfluous gear—the precious machines from the dismantled workshops—was dumped, together with the transport animals. Henceforth the army traveled light, carrying only what it needed for marching and battle. At the same time, its true direction was disguised by the operations of up to four decoy columns on the flanks of the main body.

Nevertheless, the Communists were still in great danger. The Yangtze barred their route through the province of Szechwan to their ultimate objective in the far northwest of the country. Chiang Kai-shek and Von Seeckt, having failed to hold the Communists inside their cordons of fortification, determined to make the Yangtze impassable, so that the Communists would have to turn away into the inhospitable lands to the southwest. All crossing points were fortified and strongly garrisoned, and ferryboats were withdrawn to the northern bank. The success of this new cordon, and the damage suffered by the Communists in their original breakout, can be seen in the five months that the Red Army spent in the province of Kweichow, simply marching and countermarching, a time-wasting process left largely unexplained in the pro-Communist Western accounts.

The problem of getting across the Yangtze was solved in May, 1935, in the most brilliant strategic episode of the Long March—one in which the mind of Mao Tse-tung can surely be recognized. While a Communist force feinted southward into Yunnan to menace the provincial capital, Kunming, and draw the Nationalists' attention and reserves, the main body of the Red Army marched westward along narrow trails through the mountains in the hope of crossing the Yangtze high up at Lengkai. When the Communists reached Lengkai, one of the few places where the upper reaches of the river could be spanned, they began to construct a bridge of bamboo. Chiang Kai-shek, learning of this, believed that despite the successful feint at Kunming, the Communists had now run themselves into a trap. While they were building their bamboo bridge—a job that would take weeks—the regrouped Nationalist forces south of the Yangtze would herd the Red Army against the river line and its fortified crossings and destroy it. But the bamboo bridge was only another deception. While Nationalist attention was focused on Lengkai, a Communist battalion marched eighty-five miles in a night and a day to the only other possible crossing point, the one at Chou P'ing Fort.

It was at Chou P'ing that the Communists enjoyed the kind of luck that seems so often to favor bold action in war. On the south bank of the Yangtze they captured a messenger from the Nationalist government on his way to the local magistrate with orders that the ferryboats were to be not simply kept on the north bank but actually burned. The messenger agreed to help his captors, and under cover of darkness led the Communist troops across the river in a single boat, ten men at a time, forty minutes per crossing. On the north bank at this point there was a small local tax office, whose officials were harmlessly employed in smoking opium and playing mah-jongg. The Communists, who had removed the red-star insignia from their caps, were taken for friendly troops and were cordially invited in for tea and a cigarette. At a propitious moment later in the night the Communists repaid this hospitality by disarming the guards. The Red Army now had its crossing point, complete with six large ferryboats. The main body of the army countermarched from Lengkai to Chou P'ing, and for nine days the boats constantly plied the Yangtze. When the whole of the Red Army was safe on the northern shore, the ferryboats were destroyed in order to block any direct Nationalist pursuit from the south.

Leaving aside the distances covered in the course of maneuvering, the Communists were now some seven hundred miles from their starting point. The character of the whole operation had changed, for the Communists had escaped from the area of China directly controlled by Chiang Kai-shek's Nationalist government and from the main Nationalist forces. What lay ahead of them now were not powerful fortifications and battleworthy mobile troops but provincial war lords whose allegiance to Chiang Kai-shek was hardly more than nominal and whose armies were made up of bullied peasants or opium-fogged mercenaries.

According to the legend of the Long March, however, the Communists had to fight against resolute opposition

every mile of their six-thousand-mile journey. In fact, they had not had to fight a battle since their original breakout. So imaginatively conceived and deftly carried out had been the strategy for crossing the Yangtze that no fighting had been necessary. The Long March was at this stage simply a protracted journey. Nevertheless, the march called for qualities of endurance on short rations that Stonewall Jackson's men might have matched, but that modern Western armies, accustomed to regular and copious food and to air or motor transport, would find hard on the feet, if good for the figure. Feeding the Red Army became a major problem once it had left the rich agricultural lands behind. "I think," wrote one soldier, "the most difficult spot we found was in . . . Szechuan, or later at Mo-erhkai, where we could get no food. We ate barley, grass, and the bark of trees."

Morale, however, remained high. Singing kept the feet trudging onward, and some of the songs (all with a sound Communist moral) were composed on the march itself. Rather like American Puritan pioneers stopping for an uplifting communal prayer, the army was regaled at its halts by political meetings and sermons by political workers. And whenever the enemy was not too close, holidays were duly celebrated.

There was still another major river obstacle to overcome—the River Tatu. It offered Chiang Kai-shek his last chance of blocking the march and bringing the Red Army to battle, and he himself flew to Chengtu, the provincial capital of Szechwan, to organize the defense of the river line. Once again, all ferryboats were ordered to be kept on the northern bank; once again, all crossing points were fortified. In many ways the Long March was the nursery of Maoist revolutionary warfare, and the First Front Army's maneuvers against this new river line seem once again to display the subtlety of Mao's strategic mind. For the Red Army avoided the obvious road approaches to the Tatu and made its way instead along footpaths through the dense forest that covered the mountain slopes, a forest whose canopy of vegetation concealed the troops from Nationalist aircraft. It was a march that foreshadowed the march of Mao's disciple Vo Nguyen Giap to the French fortress of Dien Bien Phu in 1954. By this kind of mobility, possible only to an army on foot, the Communists characteristically achieved not only a surprise in space, by appearing where least expected, but also in time, by appearing on the Tatu days before the Nationalists believed it could be possible.

At Anshunchang the Communists handily found a boat on the south bank because the local Nationalist commander, certain that there was no urgent danger, had allowed his wife to cross over to visit her family. A Communist advance guard, making use of this gift of a boat, routed the local Nationalists, who failed to display a resolution to die at their posts for Chiang Kai-shek. The Communists began to ferry the whole army over, using the only three available craft. Now, however, fortune temporarily deserted the Communists. The Tatu was in flood, and owing to the width and speed of the waters, it took four hours to complete a single crossing. Long before the entire army could be ferried across—a matter of weeks—the main Nationalist forces would have trapped the Communists against the river; indeed, would have caught them divided by the Tatu. It was the most dangerous moment of the Long March, apart from the original breakout itself. There was a conference of leaders, three of them men who today dominate Communist China—Mao Tse-tung himself, Lin Piao, and Chou En-lai. They decided that their only course was to move the main body of the army westward along the south bank of the Tatu, further into the mountains that rise to the Tibetan plateau, and then seek to cross the river by an ancient chain bridge over a gorge, the Luting Chiao. The advance guard already over the Tatu would keep pace with them along the northern bank. The march to the chain bridge was one of the most romantic episodes of the Long March—the very stuff of legend. The troops marched barefoot along the narrow paths clinging to the sides of the gorges, up over mountain crests, down to the muddy valley of the river itself, swinging onward by day and by night. Eyewitnesses remember the winding serpent of flaring pine-torches that marked the progress of the army in the friendly dark. Like Cromwellian divines inspiring the Ironsides, political workers urged the Communist troops to supreme efforts of speed and endurance. On the north bank, however, the Communist advance guard was delayed by Nationalist resistance, and when the main body of the Red Army reached the chain bridge at Luting, it found that the opposite side was in Nationalist hands. Rather than demolish an ancient bridge in a region where bridges were rare and expensive, the local Nationalists had contented themselves with removing the planked wooden footway from the far side of the bridge.

Now followed the episode of the Long March in which legend and fact are most at odds. Communist legend, worked up in the form of lurid tales of individual heroism, avers that the gallant troops swung themselves across the gorge by the chains of the bridge alone, in the face of heavy machine-gun fire, and then, although the Nationalists set fire to the wooden footway on their side of the river, stormed through the flames and drove the Nationalists out of their defenses. It makes a stirring and acrobatic story. However, such a desperate assault was quite unnecessary, since the Communists had only to wait for their detached force on the opposite side of the river to come up and take the Nationalists in the rear in order to free the bridge crossing. Communist accounts do in fact narrate that at the critical moment of the heroic storming of the bridge the Nationalists were so taken in the rear.

UNITED PRESS INTERNATIONAL

After the Long March, co-leaders Mao, left, and Chu Teh, third from left, take a tea break in Yenan. The man between them may be an American journalist, the girl at right an interpreter.

After the crossing of the Tatu it was topography and climate rather than human enemies with which the heroes of the Communist odyssey had to contend. There was a sixteen-thousand-foot climb over the Great Snowy Mountain, a climb that cost many lives through exposure. The army had to build its own road on Paotung Mountain, and Mao himself wrote: "On this peak one army corps lost two-thirds of its transport animals. Hundreds fell down and never got up."

In July, 1935, after eight or nine months of marching, the First Front Army reached northern Szechwan and relative safety. The army's strength in rifles had sunk from ninety thousand men in Kiangsi to about forty-five thousand, and was badly in need of rest and reorganization.

However, while the First Front Army under Mao Tse-tung had been making its way from Kiangsi, the Second and the Fourth Front Army had been undergoing their own marches. For there were, in fact, three separate Long Marches. The Second Front Army, under Ho Lung, eventually reached safety. Little is known of its operations except that it seems to have met with more constant and bitter fighting than the other armies and may indeed have had the toughest march of all. The Fourth Front Army, under Chang Kuo-t'ao, had marched due west through Honan, Hupeh, and Shensi to northern Szechwan in 1933 and does not seem to have been hard pressed, either by battle or for time. Now it moved to western Szechwan and in July, 1935, rendezvoused with the First Front Army at Maokung in northern Szechwan.

The junction of the two armies was marked by a military and political crisis within the Chinese Communist movement that was to have far-reaching consequences—both for Mao Tse-tung personally and for future relations between Communist China and Soviet Russia.

Mao had already dealt with the Returned Students Clique at a conference in January, 1935, at Tsunyi. Since the aphorism "history is written by the victor" is particularly true of Communist history, what really went on at this conference will probably never be known. However, the military failure of the Returned Students and their German adviser set them up for a well-timed stroke by Mao that left him undisputed commander of the First Front Army and director of its military and political strategy. The eclipse of the Returned Students also marked a setback in Moscow's influence inside the Chinese Communist movement. At the Maokung conference, however, Mao faced a more redoubtable opponent in Chang Kuo-t'ao, a member of the Fourth Front Army and Deputy Chairman of the Chinese Soviet Republic. His prestige and party credentials were no less imposing than Mao's. It seems, however, that Chang, like the Returned Students, was more prone than Mao to hearken to Russian counsel. The personal and political quarrel between Chang and Mao turned on an immediate strategic question—the future direction of the Long March. Chang opted for a movement westward to Sinkiang, on the grounds that Sinkiang would offer sanctuary from the Nationalists, that it would permit direct communication with the Soviet Union, and that it would serve as a convenient base in the future for fresh Communist expansion south of the Yangtze. Mao, on the other hand, wanted to march northward into Kansu, with Shensi as the ultimate destination. It was his belief that Communism's best hope was to put itself at the head of the anti-Japanese sentiment among the Chinese people, and the most likely place to do that was in the north, on the fringes of Japanese power.

The outcome of the Maokung conference was ambiguous. Mao won to the extent that the conference proclaimed the opening of the Anti-Japanese People's United Front and sought

co-operation with the Nationalists in a common struggle against the foreign invader. However, when Mao and the First Front Army departed for the north, Chang Kuo-t'ao and the Fourth Front Army went their own way, toward Sinkiang.

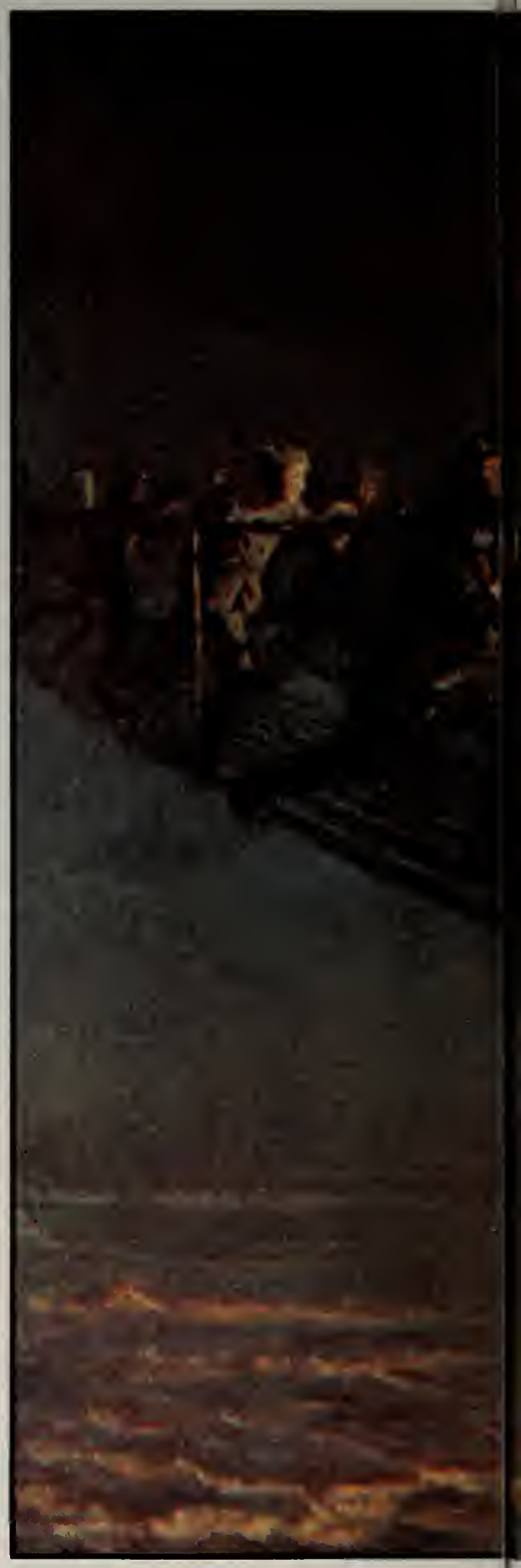
In August, 1935, the last stage of the Long March began, when Mao, Lin Piao, and Chou En-lai led the First Front Army north from Maokung. The route lay along the borders of Szechwan and Tibet—wild country inhabited by tribesmen who refused to be won over and who used against the Communists their own guerrilla tactics, stripping the villages and fields of sustenance and cutting up any parties of soldiers who left the track in order to forage. At this time the Red Army was reduced to a diet of turnips.

Ahead of the army now was one of the most daunting physical obstacles they were to meet—a two-hundred-mile-wide tract of swamp called the Great Grasslands, in which the "grass" sprang up ten feet tall and where it rained continuously. The crossing of the Great Grasslands supplied more material for legend. Here was the Communist "Slough of Despond"; and indeed, the whole Long March, as later worked up by Communist moralizers and fablemongers, has something of the flavor of *Pilgrim's Progress.*

At long last, in the autumn of 1935, a year after the breakout from Kiangsi, Mao brought his army into northern Shensi, just south of the Great Wall, and made contact with the 25th, 26th, and 27th Red armies holding the Communist base areas in northern China. The Long March was over.

In August, 1936, however, there was a postscript, when the Second and the Fourth Front Army joined Mao in Shensi. This both reunited the Communist forces and consummated Mao's personal triumph.

From this point Mao went on to apply his principles of revolutionary, or protracted, warfare to the conquest of China for Communism. While the Nationalists were weakened and distracted by the conflict with Japan, the Communists gradually extended their grip on the grass roots of Chinese life in the villages—not only at the expense of the Nationalists but also behind the Japanese lines. At the same time, their propaganda exploited the anti-Japanese feelings of the Chinese people and proclaimed Communism as the standard-bearer of Chinese independence. When the Japanese surrender, in August, 1945, opened the way for the final struggle for China, Mao's Communists controlled areas inhabited by a hundred million people and the Red Army numbered nearly a million men. The Communist regime was efficient, dynamic, and honest; it rested firmly on the support of the people of the countryside. The Nationalists by 1945 were a mere façade of power, corrupt and ramshackle, riven by disunity, and resting precariously on the towns. In the four years from 1945 to 1949 Mao completed the final stage of his protracted war by sweeping Chiang Kai-shek off the mainland in a series of stupendous offensives from north to south, thus returning in triumph to the regions evacuated before the Long March more than a decade earlier.



However much the mythmakers may have spiced up the story, the Long March remains an epic of endurance, leadership, and discipline. Though born out of a defeat in the field, it saved the cause of Communism in China and opened the way for the successful application of Mao's theories of revolutionary warfare. It made Mao's military and political reputation and established him and his colleagues as the undisputed leaders of Chinese Communism—leaders who would take whatever aid might be gotten from the Russians while firmly guarding their own independence.

Correlli Barnett, a military historian and member of Britain's Institute for Strategic Studies, contributes often to HORIZON. *His essay "How Nations Take Defeat" was in the Summer, 1970, issue.*

CATHERINE VAN MOPPES

A climactic episode: Mao's men cross the River Tatu by the chain bridge at Luting. In this socialist realist painting their faces are lighted by the flaming bridge ahead, set afire by their foes. In fact, however, their comrades on the opposite bank had by that time handily routed the Nationalists.

SASSETTI CHAPEL, SANTA TRINITA, FLORENCE — SCALA

THE HUMANISTS

IN A WORLD OF CHAOS AND STRIFE, THREATENED BY TYRANNY, WITH THE VALUES OF THE PAST HELD IN QUESTION, THE RENAISSANCE HUMANISTS RESPONDED BY DEFINING AN IDEAL TYPE OF MAN—AND BRINGING THAT IDEAL TO LIFE

By VINCENT CRONIN

The humanist as tutor, Angelo Poliziano, opposite, the great Florentine poet, stands beside his gentle pupil Guiliano de Medici, son of Lorenzo, in a detail from the 1485 fresco Confirmation of the Franciscan Rule *by Domenico Ghirlandaio.*

Humanism has become a catchword of our day, and like many a catchword is used vaguely and sweepingly. To understand what, precisely, humanism is, we can hardly do better than look at the first humanists. Who were they? And, equally important, how did they originate?

About the year 1400, in Florence, a small group of laymen with scholarly tastes began reading what was then called pagan literature and what we now call the Greek and Roman classics. There was a virtual ban on such books, imposed by the Church, and only a strong need could have caused practicing Christians to infringe it. This need lay in the nature of the men themselves. They were, as I have said, laymen with scholarly tastes. Most educated laymen in the past had been warrior lords, more at ease with a hawk on their gauntleted fist than with a book in their hand. But these laymen of Florence were not feudal warriors: their livelihood came from the textile industry and banking, which could thrive only in times of peace. They were married men, with families, and wanted to get on in the world. They were bored by the books then being written, mainly by clerics and for clerics. They could not identify with miracle-working hermits or saints ascending the ladder of mental prayer. Nor did the clerical view of life as a vale of tears appeal to them, for they enjoyed the few distractions that came their way, such as music and the racy stories of Sacchetti. In their fine scarlet gowns they were "all dressed up with nowhere to go." Such men wanted to read "pagan" literature because there, they believed, they would come in touch with other laymen having interests like their own.

This need was intensified by a dramatic moment in their city's fortunes. In 1390 Gian Galeazzo Visconti of Milan, poisoner, tyrant, and lonely neurotic, whose banner depicted a viper swallowing a man whole, sought to conquer Italy. Florence, the leading free city, tried to unite Venice, the pope, and certain Tuscan city-states against Gian Galeazzo, but the league came to nothing, and in 1402 Florence found herself alone. Desperately the leading citizens sought to raise sinking morale. They recalled the tradition that Florence had been founded by colonists from Rome, that the republican constitution on which they prided themselves was probably a legacy of the old Roman municipal government, and it occurred to them that by exploring this link they might be able to find a spiritual ally in the past to take the place of an actual ally in the present. They got hold of Latin manuscripts that told them that Florence had been founded in republican times, in the first century B.C., before Rome had fallen under the rule of a single man. Against Gian Galeazzo's pretensions to be the successor of the emperors, the Florentines announced that they were heirs of those republicans who had battled to save Rome from tyranny. They even called themselves "new Romans," and this became their war cry. It gave their morale a spectacular boost, so that they bravely withstood a long blockade, famine, and plague. Then, Gian Galeazzo died suddenly of fever, and the danger passed. But in Florence a new era had begun, for it was now believed that the classics held the secrets of success, and men were more than ever determined to read them.

Florentine scholars began to explore cobwebbed monastery libraries throughout Europe. They brought to light an immense amount of forgotten material, from cookbooks to lives of the philosophers. They reclaimed, within a generation, the great mass of ancient literature, and they translated most of it. It was a fantastic moment for the human spirit, comparable to the sudden arrival of a capsule from outer space containing an unknown Loeb edition of the Greek and Latin classics.

This literature is vast in time and range. From Homer to Diogenes Laërtius it spans a thousand years. It extends from the gloom of Hesiod to the frivolity of Ovid, from the high morality of Aeschylus to the slapstick of Plautus. In such a wealth of material it is possible to find a precedent for almost any statement, for any way of life from crude hedonism to the cynicism of Diogenes in his barrel. Yet almost as remarkable as the discovery itself is the fact that the Florentines who read this literature evolved from it a way of life that presents a definite homogeneity. They were immersed in these books not as idlers or dilettantes, not as pure scholars or men seeking material for a doctoral thesis. They were men with unsatisfied needs, with a deficiency of certain intellectual and spiritual vitamins. It was to make up for this deficiency that they adopted for themselves certain elements from the

BIBLIOTECA NAZIONALE, FLORENCE

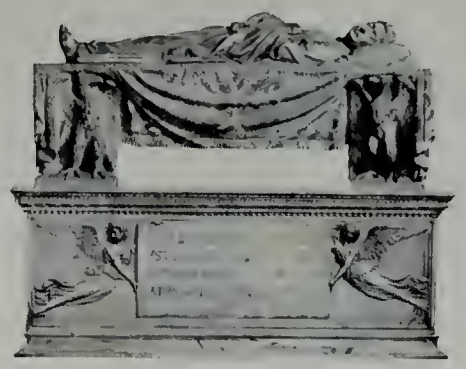
COLUCCIO SALUTATI

Pioneer humanist Coluccio Salutati, born in 1331, was one of the first to argue that Christians should emulate the pagan heroes of antiquity. To the orthodox retort that this would lead to damnation, Salutati replied that Romans like Cicero taught men what Christianity did not teach them: about politics, citizenship, and political liberty. Salutati's viewpoint ceased to be academic after he was named Chancellor of Florence and charged with conducting diplomacy (a staunch republican, he insisted his correspondents address him as "friend" and not by his title). When a powerful Milanese prince tried to annex the free cities of Italy, it was Salutati who rallied Italians to defend their liberty against the "tyrant," as Roman citizens of old had defended their republic. In Salutati's hands, knowledge of antiquity was a political weapon, and this convinced the practical Florentines that it was knowledge worth securing.

classical past and rejected the rest.

Coluccio Salutati, Chancellor of the Florentine republic—the equivalent of Secretary of State—father of ten sons, and one of the earliest Florentines to explore the classics, defined humanism as, first and foremost, moral learning. Coluccio meant that in reading the classics he was primarily concerned with the behavior of men and women, not *in vacuo* but in relation to his own needs and those of his friends. This can be illustrated by Coluccio's discovery of Cicero's *Epistolae Familiares*. Cicero, through the Middle Ages, had been considered a cleric-like philosopher, who lived as a recluse in the depths of the country, speculating on God and eternity, but Coluccio saw another side of him: consul, enemy of tyrants, so deeply concerned about political freedom that he hurried back from retirement in order to save the republic from Caesar and eventually paid for his beliefs with his head. Such behavior appealed to Coluccio because his own job in life was to preserve a free city from tyranny. From that moment Cicero the politician became one of the humanists' heroes, while the civic sense and public-spiritedness Cicero had displayed became essential ingredients of their ideal man.

The interest in moral behavior is apparent again in Leonardo Bruni's reading of the classics. Bruni, a disciple of Coluccio and also Chancellor, retells a story he found in the Greek historian Appian. It concerns King Seleucus of Syria, whose son Antiochus falls violently in love with his father's beautiful young second wife. Antiochus controls his passion, but falls sick and longs to die. Seleucus calls the doctor, who seems to have been something of a psychiatrist. "Your son's disease is love," he tells Seleucus, "but a love that is hopeless." The doctor only dares to hint at the lady in question, but Seleucus understands. Instead of flying into a rage and drawing a dagger, he gives his wife to Antiochus, who promptly recovers, and all three live happily ever after. Bruni then compares Seleucus with a well-known figure in Italian history, Tancred of Naples. Tancred had a beautiful daughter named Ghismonda, of whom he was jealously possessive. When a Neapolitan noble started courting the girl, Tancred had the suitor strangled, whereupon Ghismonda died of grief. Bruni concludes that in "humanity and kindness of heart the ancient Greeks were far in advance of Christians." Notice the wording: "in humanity and kindness of heart." Bruni never doubted that Christian beliefs were higher than pagan, but as a humanist it is behavior, not beliefs, that interests him.



SANTA CROCE, FLORENCE—ALINARI

LEONARDO BRUNI

Leonardo Bruni, whose tomb is shown above, was born in 1369. Salutati's protégé, he devoted himself to documenting his patron's republican humanism. Imitating Livy, he wrote the first modern narrative history, an account of Florence from its foundation. In his *History* appeared the first modern analysis of a political community, wherein Bruni tried to show that Florence's greatness stemmed directly from the "free access to public office" enjoyed by its citizens. Not only did Bruni draw his political ideas and literary style from the ancients, he also emulated them in the daily conduct of life. Named Chancellor in 1427, Bruni endeavored at all times to carry himself calmly and majestically, in imitation of the Roman idea of *gravitas*—an assertion of the importance of dignity of bearing that would later find its expression in classical Renaissance painting. On his death in 1444, the great humanist was aptly honored by Florence: the citizenry gave him an elaborate public funeral "after the manner," it was said, "of the ancients."

As well as being moral philosophers, these early humanists were historians. Bruni steeped himself in Livy and Thucydides, and he was the first man to write a history in the modern sense, that is, as opposed to the year-by-year chronicle. Here again the man, his learning, and the product of his learning were tinged with that patriotism that Gian Galeazzo's attack had released, for Bruni's book was a history of his own city, in which Florence down the ages appeared as the heroic champion of civic liberties, preserving the treasure entrusted to her in the first century B.C. So well did Bruni's *History* please the Florentines that they deposited a copy in the Palazzo della Signoria, as though it were a spiritual foundation-stone of Florence, and—a rare favor among these hardheaded men—they gave Bruni and his sons exemption from income tax for life.

As the century progressed it became the custom for political thinkers and others, even painters and musicians, to turn to classical history for guidance. To lack a historical example in any argument, whether it concerned the deployment of an army or the layout of a garden, was to be as much at a disadvantage at it had been, in the Middle Ages, to conduct a disputation without reference to Scripture. So highly did humanists esteem the ages of Athens and republican Rome that they coined the word *rinascita*, or rebirth, to suggest that their own era was renewing those excellent periods of history. They did not yet think of equaling or surpassing the ancients; they were proud enough to be on the same course. And to keep their course correct, they were constantly taking historical bearings on Socrates and Pericles, on the Gracchi and Cicero.

Let us look now at a typical early Florentine humanist: Leon Battista Alberti. He was born in Genoa in 1404, the illegitimate son of a Florentine banker exiled for his political opinions. On his father's death he was cheated out of the inheritance that should have been his and had to earn his living as

a papal secretary. This is an important aspect of the humanists: almost to a man they were gainfully employed, not leisured courtiers, not dilettantes.

Alberti was a thin, sickly youth. He caught cold in the slightest draft and fever in the slightest heat. In the past it had been usual to accept ill health as a cross sent by Heaven. But lately Greek and Roman respect for the body, expressed in the great nudes of classical sculpture no less than in the odes of Pindar, had become part of the educated Italian's attitude. So instead of accepting his puny physique Alberti sought to improve it. He did gymnastics, walked long distances, rode horseback, with the result that he soon became quite an athlete. Standing in the Florence cathedral he could hurl a coin with such force that it could be heard to ring against the roof. His portrait shows a face that is lean but muscular, vibrant with sensibility, and eager-eyed: a man determined to make his mark.

Alberti did make his mark—as a writer, architect, painter, sculptor, and musician. Such versatility is a distinguishing characteristic of the humanists and another essential ingredient of their ideal man. In part versatility was a practical expression of the tremendous energy released through the study of the classical world, but it must also be seen as a reaction against the pigeonholing of earlier centuries. The medieval division of mankind into *oratores, bellatores, laboratores* (those who pray, those who make war, those who work with their hands) is well known, and within the latter category men were subdivided by the guild system into armorers, masons, furriers, and the like. These distinctions had been unknown in the ancient world, in which Aeschylus, as is proudly inscribed on his tomb, fought at Marathon, and in which Socrates was known not only as a philosopher but also as a sculptor. The humanists returned eagerly to this classical concept, and set no bounds to the skills one man might master.

Versatility went hand in hand with a markedly amateur attitude. Alberti did things for the love of it—one might almost say for the hell of it. Florence never had a university and distrusted the attitude that had once sought to count the angels on a pinhead and now, in less humane cities, tried to count the number of imperfect subjunctives in Thucydides. It was reported of Cicero that he had never been a professional philosopher and that he conducted his philosophical meditations in the corridors of the law courts: "He philosophized most when he seemed to be doing so least." That became a catch phrase in Florence, and a kind of ideal.

In 1469 Alberti wrote a masterpiece of moral philosophy, the *De Iciarchia.* Here are some quotations from this little-known book:

> If you are idle you might as well be asleep: you are neither wholly alive nor wholly dead.
>
> Man is born to be useful to his fellows. And the purpose of all his skills is simply the service of others.
>
> We must so conduct ourselves that when evening comes we have no cause to say, "Today I learned nothing, today I acquired no graceful accomplishment, today I did nothing useful for a friend, nothing that gave me enjoyment.
>
> Believe me, a man who is eloquent will easily make others carry out his wishes.

The emphasis throughout is on public-spirited activity. The fortune of a state is determined not by fate but by its members' own actions and virtue. Life is not tied to rigid schemata, decreed by Providence, discerned by prophets: it is malleable by man's powers when they are directed by a strong will.

In his great book on architecture Alberti laid down that the prospective young architect should receive a wide general education. Like all the early humanists, Alberti believed in the interpenetration of knowledge, especially of science and the arts, and therefore that wisdom could never be partial. Architecture, for instance, was a visual expression of certain musical harmonies, and these in turn, as Pythagoras had shown, were based on mathematical principles. The nude, which the

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SANDRO BOTTICELLI

CHRISTIAN HUMANISM

Of all the great Renaissance painters, few drew as explicitly on humanism as did Sandro Botticelli, who belonged to the humanist circle that gathered around Lorenzo de' Medici. The humanism of this group, however, was not the republican humanism of the preceding generation. Its characteristic was not virtue and noble action but a new spiritual ideal that included beauty and a love of the beautiful, a reinterpretation of classical myths as spiritual allegories, and an intense devotion to Plato. Botticelli's famous portrait of Saint Augustine in his study, opposite, was painted about 1480, after Ficino had finished his eighteen-year-long task of translating the works of Plato into Latin. In Botticelli's view the Bishop of Hippo was a humanist hero for having reconciled Platonism with Christian doctrine.

UFFIZI, FLORENCE — SCALA

An elaborately allegorical painting, Botticelli's Birth of Venus, *done about 1486 for a cousin of Lorenzo's, shows the pagan goddess floating toward shore on a scallop shell, the Christian symbol of spiritual birth. The combination of pagan and Christian elements – and the implied birth of a new age – incorporates the essentials of the humanist spirit.*

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humanists resurrected as an art form, was not just an unclothed human body; it transcended itself. Its proportions were to be found in nature, in geometric figures, and in all beautiful buildings. One aspect of this truth is to be seen in Leonardo's famous drawing of a man with outstretched arms and legs standing in a square and circle.

Alberti and his friends show a real distrust of specialists. It was specialists who had evolved the metaphysical jargon that had recently been discredited by William of Ockham; specialists who had evolved the mumbo jumbo of astrology, which chained man in a Babylonian captivity; specialists who had evolved the ungainly Gothic script, full of abbreviations, piggyback letters, and other esoteric devices, making of books a kind of cabala understood only by the initiated. It is no accident that the humanists' first visible contribution to civilization was the legible cursive, or italic, script from which our own modern printing types are descended, for these men who believed in man's powers wanted above all to be able to communicate with their fellows: the doctor with the poet, the architect with the engineer. It was for this that they gave themselves a sound general education.

The humanists' esteem for the generalist was, as we have seen, an aspect of the new ambition to serve one's fellow men, and it is especially evident in the field of religion. The early humanists were Christians, and if Alberti reacted against clerical values, his work is nonetheless deeply imbued with Christian faith. But he no longer saw religious truth as a prerogative of Christians. Whereas Dante had excluded even his admired Virgil from Paradise, it became evident to Alberti and his friends, as they studied the facts more closely, say in Plutarch's *Lives*, that men born before Christ had indubitably managed to live good lives and that often their virtue had been on a heroic scale. The humanists formulated the view that such men had attained salvation because they "foresaw" the truths of Christianity. They put great emphasis on elements they believed to be common to both paganism and Christianity: vestal virgins foreshadowing nuns; Mercury, the angel Gabriel; Jupiter, Neptune, and Pluto, the Trinity. Much of the painting of the period, culminating in Raphael's *School of Athens*, is a statement of the view that there exists a body of truth common to both pre-Christian religions and to Christianity. Indeed, it was held that this common body of truth had been adumbrated in Egypt, then passed to the Hebrews and Greeks, and finally to the Christians.

After this brief survey we may provisionally define the humanist as a man widely read in moral philosophy and history, staunchly republican, public-spirited, and versatile, eager in all fields, even religion, to work for understanding and harmony. But humanism was not a static concept; it was a movement with a definite curve of development, and this may be traced in five generations of the most famous of all Florentine families, the Medici.

The "founding father" was Giovanni di Bicci de' Medici. He was a highly successful banker, largely because his clients, the popes, happened at this time to be solvent. His portrait shows him to have had a pear-shaped, bony face, a toothless mouth, and kind, almost gentle, eyes (the Medici had a long record of sympathy for the underdog). He was a banker pure and simple; that is, a specialist—the reverse of a humanist. He did not feel the urge to play an important role in politics, and his library was limited to a few devotional books and lives of saints. Doubtless he heard of the manuscript discoveries being made around him, but he was too old—he had been born in 1360—to assimilate them or alter his ways.

Giovanni's son Cosimo could hardly be more different. He was born in 1389, and would have been eleven during the siege of Florence. He plunged eagerly into that so-different classical world where men felt themselves to be mas-

In his painting the Magnificat, *finished about 1483, Botticelli rendered the Madonna as an ethereal beauty. A love of beauty, the humanists said, led the soul to the divine.*
UFFIZI, FLORENCE—SCALA

ters, not slaves, of fate, reading the Latin authors with a tutor and evidently learning some Greek, for he proposed that he should visit the Holy Land — not to see the holy places but to unearth lost Greek manuscripts. Giovanni could not understand this kind of pilgrimage and instead packed Cosimo off to the Council of Constance as banker to the pope.

Cosimo was "of fine physique and more than average height; his expression and manner of speech were mild . . . he easily endured toil and hunger and often passed whole nights without sleep." Then comes a phrase indicative of that broad alertness we have already met in Alberti: "Nothing went on in Italy that he did not know." This man became head of the Medici Bank in 1429. In due course he opened new branches, but it was largely because of political stability and peace that he added to the fortune Giovanni had left. Certainly he gave less time to banking than his father had done. To start with, for nearly all his life he was active in politics. Public-spiritedness and participation in politics were, as we have seen, two important articles in the humanist creed, and Cosimo observed both so well that he was accorded the title once granted by a grateful republic to Cicero: *Pater Patriae*. The title is to be understood less in a paternalistic sense than in the sense of Defender of Civic Liberties—against those feudal-minded Florentine families, such as the Albizzi, who wished to reduce the number and power of the lesser guilds.

Cosimo's second great interest was architecture. Building as a reflection of public-spiritedness was another principle of humanism, and Alberti makes the point that the most important part of a house is the outside, for it is that which gives pleasure to others. No building was more attuned to the spirit of the times than a library — a tasteful repository for the classical works now being busily copied by scribes in new, legible handwriting — and Cosimo built two libraries, one in Venice for the monks of San Giorgio, who sheltered him during a year of political exile, the other in Florence for the Dominicans of San Marco. He also built himself a fine house — though less fine than the palatial residence designed for him by Brunelleschi, for Cosimo well knew the streak of envy in his fellow Florentines. In the courtyard roundheaded Roman-style arches are surmounted by medallions reproducing motifs from classical gems. In the center stood Donatello's *David*, and this more than any other single artifact is a monument to Cosimo's humanism. Though it possesses the simplicity of genius, it is by no means a simple work. The David whom it represents is not strictly speaking the Biblical king, author of the psalms and founder of Jerusalem, but rather the Goliath-slayer in his adopted role as political patron of Florentine liberties. He is portrayed as a beautiful nude athlete because under the influence of the classical revival, that had become the humanists' artistic ideal. The stance, with one leg bent slightly at the knee, is modeled on works, or descriptions of works, by Polyclitus. So the statue brings together three civilizations, Hebrew, Greek, and Florentine; and three points of view, the religious, the aesthetic, and the political—all three part of the humanist's make-up.

The word "humanist" has today acquired overtones it never originally possessed. It suggests one who is a believer in man rather than in God, and Etienne Gilson has given this view in his well-known, and to my mind totally erroneous, definition: "The Middle Ages—God without man; the Renaissance: man without God." Just how much this view differs from the facts can be seen from Cosimo's life. He lived according to Christian principles, made many church endowments, and out of his own pocket helped finance the ecumenical council that attempted to heal the schism between the Greek and Latin churches. We see it also in the last important aspect of his humanism: his interest in philosophy.

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FRANCESCO COSSA

THE SCHIFANOIA FRESCOES

Humanism freed men from many bonds, including that of the medieval church's belief in the wickedness of astrology. The ancient symbols of the zodiac reappeared in the frescoes of the months at the Palazzo Schifanoia, painted by Francesco Cossa and other artists around 1470, which probably make up the most important cycle of secular paintings done during the Renaissance. Three bands divide each fresco. At the top, mythological gods and goddesses preside. Opposite stands a graceful young man from the middle band, who is perhaps the astrological symbol for the last third of March. The paintings of the bottom register glorify the prince who commissioned the frescoes, Borso d'Este, who is shown dispensing justice and charity.

Presiding over April in the portion of Cossa's fresco shown at right is the goddess—not the planet—Venus, borne by swans into a frank scene of springtime wooing, flower-picking, and the gamboling of rabbits, folk emblem of sexual fertility. Venus herself is being assiduously wooed by Mars, a love slave in chains in spite of his formidable armor.

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Like many a man of spiritual integrity, Cosimo was plagued all his life by a single nagging doubt: does the soul survive death? According to experts at the University of Padua, Aristotle never taught that the soul is immortal: all he said was that a certain part of the mind, in no way personal or individual, survives death, but only merged in a general disembodied World-Mind. This view, which clashed with Cosimo's faith, worried him deeply.

At the Council of Florence Cosimo listened to a white-bearded Greek philosopher in his eighties named Gemistus Pletho, who lectured informally on Plato. Cosimo found that Plato had much to say about immortality, and made a mental note to study his works. But only a few had been turned into Latin, a very unsatisfactory Latin at that, and other activities prevented him from fulfilling his ambition until he himself was growing old. He then had the good fortune to meet the young son of a doctor, of diminutive stature and stoop-shouldered but endowed with a keen, synthesizing intelligence, by name Marsilio Ficino. There and then Cosimo commissioned Ficino to translate the Dialogues of Plato into Latin, and gave him a house at Careggi where he could do the work in peace. Soon Cosimo held in his hands those weighty arguments whereby Socrates tried to prove that man's soul has an existence independent of the body. The best known is his questioning of an illiterate slave and the eliciting from him of correct answers to mathematical problems. Whatever we may think of that argument now, along with others it brought Cosimo a certain peace of mind, for at the end of his life we find him writing a note to Ficino asking him to bring to the house his latest translations, and his lute, too—for music helped to create that mood of harmony between man and nature that is the background for Platonist views of the soul. In turning to Plato, Cosimo was not deserting Christianity, he was merely seeking the best available rational arguments from antiquity in support of his faith. In short, he was acting as a humanist.

NATIONAL GALLERY OF ART, WASHINGTON, D.C., SAMUEL H. KRESS COLL.

LEON BATTISTA ALBERTI

Leon Battista Alberti, born in 1404, stood out among the Florentines of his time as the highest embodiment of the new ideal of the "universal man." Composer, painter, writer, architect, inventor, scientist, and sculptor (the medallion above is a self-portrait), Alberti was all of these and more, for his great gifts were melded into a singularly harmonious personality, strong and sweet-tempered, beauty-loving and public-spirited. When, after his death in 1472, painters like Raphael began to portray a new race of heroic men, they were not "idealizing" mankind but depicting an ideal that had already been realized by such men as Alberti.

Cosimo's son Piero, who became head of the bank on his father's death in 1464, is the least known of our group of Medici. He was tormented by gout, and in later life had to be carried, even inside the Palazzo Medici, when inspecting the *objets d'art* with which he had filled its largest rooms. But he, too, was a humanist, not a dilettante as he is sometimes represented. We have proof of this in a small but revealing incident. Around 1440 a widespread argument broke out as to whether Latin or Italian was the better medium for literature. Many leading thinkers, especially those who had enjoyed a classical education, favored Latin—just as Dante had done; the great poet could not believe that a serious work could be written in the *volgare*, which is one of the reasons he called his epic *La Commedia*. Piero, however, although himself a good Latinist, favored Italian, and in 1441, with Leon Battista Alberti, he staged a literary contest in the Florence cathedral. The entrants were to compose a poem in Italian "On Friendship" (a typical humanist theme), which was to be read before the *signoria*, the archbishop, and the Venetian ambassador. The high altar was transformed into a tribune, and there sat the judges. Among the contestants was Alberti, versatile as ever. None of the poems proved to be first-rate, but an important precedent had been created. The fact that Piero plumped for Italian shows his respect for all men—not just the educated among them. He wanted as many as possible to share the thoughts of the poets. This "popularizing" in the best sense of the word is an essential element in humanism.

In 1469 Piero was succeeded as head of the bank and as "first citizen" by his elder son, Lorenzo. Lorenzo was sometimes known as *"il Magnifico,"* and a lot of nonsense has been written about this epithet, which was a common courtesy title within banking circles and had been applied to Cosimo too. There was no "magnificence" or splendor about Lorenzo, as there was, say, about King François I. He did not wear fine clothes or give himself airs; in fact, at the Palazzo Medici, everyone took a seat at table just as he happened to arrive. *"Magnifico"* is to be understood as one who spends freely for the good of his fellow men.

As well as being a banker and politician, Lorenzo was a poet, and his humanism took the form of fathoming the creative process. As a young man he wrote a sonnet sequence to his sweetheart. That was common enough. What is unusual is that Lorenzo wrote a commentary explaining the psychological genesis of each sonnet. Lorenzo was interested in these facts for the light they threw on the artistic process generally. At meetings of the little group presided over by his grandfather's protégé Marsilio Ficino, which now

In a detail from Cossa's fresco for March, a smiling Duke Borso and his friends are shown falconing; above, peasants repair their vines.

MARSILIO FICINO

COSIMO DE' MEDICI

Marsilio Ficino, top, revived Platonic philosophy and became, after 1459, the protégé and mentor of Cosimo de' Medici, above, the first Medici to govern the Florentines.

ABOVE: METROPOLITAN MUSEUM OF ART, BELOW: BIBLIOTHEQUE NATIONALE - GIRAUDON

called itself the Platonic family or the Platonic Academy, Lorenzo and his friends, taking up hints in Plato and the Neo-Platonists, worked out a philosophy of art according to which the artist, glowing with the excitement of a *furor divinus*, admires in the "mirror" of individual forms the one ineffable splendor of the light divine in which the soul has reveled before its descent to earth, which it longingly remembers ever after and which it can temporarily regain in this life. The artist takes a place beside prophets and sibyls; he is a man chosen to continue God's creative work; he is one who helps to round off the universe.

Whatever we may think of the details of his theory, Lorenzo accorded art a high status it has never since lost. He saw that the artist's "imaginative leaps" and technical innovations were an important contribution to society, and in order to train artists he started his "garden school." Young Michelangelo was among the first pupils; here he brooded on the powers of man, really the powers of the creative artist, which he was to blazon forth on the Sistine ceiling.

Meanwhile, across the street, in the fine classical-style library that Cosimo had built for the Dominicans, a hooded figure was following quite a different line of thought. Plunged in the Old Testament prophets and the more severe of the Church Fathers, Girolamo Savonarola was penning a series of Lenten sermons denouncing humanism and the humanists. To try to square Christianity with the classics, Savonarola said, in effect, was like trying to square the circle. The fables of Ovid and the rest were the works of madmen. Socrates had been nothing but a homosexual—and homosexuals should be burned at the stake. Lorenzo, horrified, tried to get rid of the intruder from Ferrara. He even gave large donations to the Dominican church, a very Florentine way of trying to buy off trouble. But Savonarola refused to yield an inch. He wanted the old ban on classical literature rigorously enforced and an end put to the more tolerant moral attitudes that had accompanied humanism. He began by burning on a pyre "pagan" books, cosmetics, playing cards, music, and paintings of nudes, including some by Botticelli.

Lorenzo did not secure the dismissal of Savonarola. He fell ill while the Dominican was still in full cry and died, at the early age of forty-three, before a decision had been reached in the struggle between the old clerical form of Christianity and the new lay version known as humanism. But his achievements are nonetheless very important. Lorenzo's humanism was more sophisticated than that of his Medici predecessors. He could take for granted such qualities as public-spiritedness, political responsibility, and unflagging work; he was more concerned with man's latent powers, and how they might be released for the benefit of all. Other humanists had been aware of the past and the present: Lorenzo was aware of the future.

We now come to the last of the Medici humanists. Savonarola's activities, the invasion of Florence by Charles VIII of France, and a series of military and political debacles sapped Florentine self-confidence. By 1500 Rome had succeeded Florence as the political and intellectual leader of Italy, and it was there that Lorenzo's second son, Giovanni, put into effect the last phase of Florentine humanism.

Giovanni was elected pope in 1513, took the name Leo X, and set out to make Rome the most civilized city in Europe. He brought to Rome the best singers, organists, and lutanists, as well as three hundred poets, and he staged such plays as Cardinal Bibbiena's *Calandria* and Machiavelli's cynical *Mandragora*. Ambassadors were shocked that Leo should attend "indecent" plays and laugh at anticlerical jokes. Leo might well have replied with a line from Terence, a favorite playwright of the day: *Homo sum, humani nihil a me alienum puto*—"I am a man, and interested in everything

PIERO DE' MEDICI

LORENZO DE' MEDICI

Piero de' Medici, top, ruled Florence from 1464 until his death in 1469. He was succeeded by his son Lorenzo, above, a ruler who preferred the company of poets and artists.

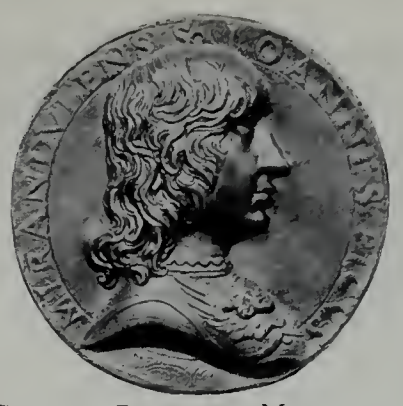
ABOVE: MUSEO NAZIONALE, FLORENCE - ANDERSON; BELOW: BIBLIOTHEQUE NATIONALE - JEAN ROUBIER

touching my fellow men." It was one of Leo's principles that Christianity, learning, and the arts were not three separate compartments, but complementary ways to the truth. In new guise this was the old humanist belief in the general as opposed to the specialized.

Leo's predecessor, Julius II, had begun to replace the old St. Peter's, with its medieval accretions, with a new basilica in the classical style, that is, in a style that would be a visible link between antiquity and contemporary Italy. Leo continued this project: really an ecclesiastical counterpart of his great-grandfather's town house. It was Leo who placed Raphael in charge and allocated him sixty thousand ducats (about $430,000), whereupon Raphael remarked that the basilica would cost a million ducats—as indeed it eventually did.

Rome was not a productive town like Florence, and almost its sole source of revenue was pilgrims. In order to pay for the new St. Peter's, Leo had to raise money outside Italy, and this he did by extending the indulgence already in force in Italy to certain provinces of Germany. The sequel is well known. Stung by abuses of the indulgence, Luther launched his attack on the notion of merit and the pope's teaching authority. Leo had never received proper theological training, and when Luther's case came to Rome, he had to hand it over to experts, who in the event showed themselves less liberal-minded than the pope. Luther was excommunicated, and in 1527 a largely Lutheran army sacked Rome, destroying many of the creations of humanism, and worse, the old confidence in man, so that there was to be no future flowering of humanism in the city of the popes. Though Leo was the instrument, humanism had not destroyed itself or released the seeds of its own decay: the collapse resulted from forces beyond its control.

After 1527 Italian humanism retreated to Venice, the only free city of importance left in Italy. It flourished there for a generation before shriveling in the dry winds from Trent and in the economic decline of the lagoon city. It cannot truly be said to have revived until Italy emerged from enslavement in 1860. Freedom, and a certain economic euphoria, have always been essential conditions of humanist activity.



BIBLIOTHEQUE NATIONALE—GIRAUDON

GIOVANNI PICO DELLA MIRANDOLA

Giovanni Pico della Mirandola, born in 1463, was a leading light of Lorenzo's humanist circle. Pico was chief among the humanists to defend the science and learning of all ages against the one-sided devotion to classical antiquity. Yet it is Pico's *Oration on the Dignity of Man* that represents one of the clearest expressions of the humanists' faith. "I have created thee a being, neither heavenly nor earthly, neither mortal nor immortal," Pico has the Creator say unto Adam, "that thou mightest be free to shape and to overcome thyself."

If this brief survey of humanism in the Medici family has revealed one truth of special relevance to our own time, it is, I think, the importance to society of generalists, men who see, or believe they see, the whole forest, not just some or one of the trees. Without pressing the point, we may note that the most tragic mistakes in the Medici family came, in the field of banking, when Lorenzo handed over the responsibility for local branches to local managers, many of whom lost money in schemes that looked good from their own limited and too-close standpoint; and, in the wider field of international politics, when Leo handed over the case of Luther to specialists, men like Prierias, who even lacked good manners and called Luther a "son of a bitch" in print. From Cosimo right through to Leo, the Medici humanists at their best were engaged in sharing, communicating, widening, even educating, and always they chose modes, language, and terminology that would be understood by nonspecialists. As Alberti put it, "I write not for myself, but for all humanity."

If the humanists were able to generalize so effectively, the main reason is that they had so wide a knowledge of history. Many today who claim to be humanists lack that grounding in history, particularly in the comparative history of civilizations. Of course it is not necessary for present-day humanists to make a special study of Greece and Rome: the Italian Renaissance or even Ming China would do just as well. But it is important that they should study the history of another country. The thinkers of Byzantium sought to arrest decline by studying their own history, and reviving their own philosophers, without success. Cross-fertilization was needed, not inbreeding.

One last point needs to be made. The humanists' study of history was always informed by a moral purpose. They wanted to discover how man might best fulfill himself—under what form of government, with what education and friends, by means of what kind of art. They sought to warn him against mistakes, not by handing down tables from the mountain, but by pointing, with sympathy and good humor, to this or that comparable example in the past. Their method was more modern than we perhaps may have realized, and always there is the living, practical touch. For this reason the humanist provides a healthy balance to the technocrat and mere collector of facts. Doctor Johnson's friend Mrs. Thrale put it well when she wrote, "Those steady scholars will be often found neglectful of what would not disgrace them to know: They keep polishing and brightening the Key of Knowledge, but think not of opening the Door with it."

Vincent Cronin, a British historian, is author of The Florentine Renaissance *and* The Flowering of the Renaissance.

ILLUSTRATIONS CONTINUED OVERLEAF

RAPHAEL SANZIO

THE SCHOOL OF ATHENS

Raphael's School of Athens, *at right, decorates a wall of the Vatican, temporal center of Catholic Christendom. Painted in 1509, the fresco sums up the humanist enterprise more fully than any prior work of art. Here are the pagan heroes of the humanists: Plato, at center, pointing to the heavens, with Aristotle on his left; Zoroaster as an astronomer balancing a celestial sphere at far right, while Euclid works with a compass nearby; and Pythagoras, seated at the left, searching out a passage in a book. The pagan philosophers have been comfortably absorbed by the Vatican, but the painting is not so much a paean to classical antiquity as it is a new kind of classical art. Except for Leonardo, no painter before Raphael had succeeded in reconciling the claims of ideal beauty with fidelity to the visible world of perspective space, and in representing that ideal beauty in the force, grace, and movement of the human figure. Raphael's* School of Athens *is not only a painting filled with humanist allusion; in its energy and balance, it is also in itself a triumphantly humanist painting.*

STANZE DELLA SEGNATURA, VATICAN — SCALA: DETAILS: SAME

ET

The figures of Plato and Aristotle, opposite, stand majestically at the center of Raphael's School of Athens. *Just as the two rival thinkers appear reconciled in the midst of their differences, so the fresco itself represents the reconciliation between the church and the pagan world. The church was willing to grant that pagan thought was the acme of profane philosophy—as long as the humanists granted that the greatness of the ancients lay precisely in their anticipating Christian truths without the aid of Revelation. At right, the group in the foreground includes Zoroaster (left) and Ptolemy, his back to the viewer and a crown on his head to symbolize his presumed descent from the Ptolemaic dynasty of Egypt. The mild-looking man in red, peering out of the fresco, is Raphael himself.*

Pythagoras laboring over his book, at right, is surrounded by an odd supporting cast. The man leaning over his shoulder may be Averroës, the Arab philosopher whom Dante admired. The young man in the white robe is Francesco Maria della Rovere, nephew of the pope (Julius II) who commissioned the painting for the Vatican. The man seated at right represents the philosopher Heraclitus but is, in fact, Raphael's portrait of his brooding rival, Michelangelo. The figure standing in the center has been identified as Parmenides, as Xenocrates, and as Aristoxenus. Whoever he may be, Raphael was no doubt more interested in his movement, his gesture toward the book of classical writing in his hand, than in his identity. Only seven years after Raphael finished the painting, Martin Luther tacked his revolutionary theses to a church door in Wittenberg. In the ensuing convulsions of the Reformation and its aftermath, the humanist movement would be eclipsed and much more than the identity of this one man would be obscured.

U
S
A
GARDEN OF EVE
TRAILER
PARK
TOM SMITH
Rombola

The Invisible Suburbs

Houses are a thing of the past; in the future,
it would seem, we will all live in "mobile homes." Six million
Americans already do—though nobody's noticed

America is one of the few civilizations to have grown up without ever having developed a unique and indigenous domestic architecture. We haven't yet settled upon anything as practical as the igloo, as fanciful as the pagoda, or as flexible and elegant as the traditional Japanese house, which can be redesigned in an hour. We're still experimenting, adapting, and deliberating, and so far, we've managed to keep warm, dry, and comfortable without making any firm commitment. While the experiments go on, we manage to live, like hermit crabs, in whatever accommodations other societies have left on the beach. There has always been a lot of vitality and variety here, but not much that anyone can point to and say, "That's typical. You don't see *those* anywhere else." For a while, at the beginning of the century, it seemed as though the skyscraper might qualify as our answer to the pyramid or the onion dome, but now every city in the world has a skyline, and ours are showing their age.

Recently, however, there have been unmistakable signs that a choice is finally being made; not architecture exactly, but a substitute for it—a technological solution to the housing problem that is all-American. Six million people in this country have given up conventional housing entirely, thereby escaping the tensions of the cities, the expenses of the suburbs, and all the nagging doubts that plague the rest of us: "Must we paint this year?" "What about storm windows?" Can I mix Early American with late Grand Rapids?" Better still, the rebels never lose sleep over the hardest question of all—"But can we afford the taxes?" So far—though it cannot last much longer—they are a group whose members cannot be found on any property-tax rolls.

The six million live in mobile homes—foundationless dwellings turned out by a factory and offered to the buyer in various models, like automobiles. The mobile home rests on a chassis. It is essentially an oblong truck-body, most often an aluminum box covered with a metal skin grooved to resemble siding. Interior space is partitioned off to create separate living, sleeping, and sanitary compartments. Standard windows are usually small and high in order to provide the maximum amount of wall space. There is not much natural ventilation, but most newer models are air-conditioned. Mobile homes could have been developed in much the same form a hundred years ago, and the only curious thing about them is that it took Americans so long to find this particular—and obvious—way out of their old architectural dilemma. The mobile-home phenomenon would have delighted John Adams and Benjamin Franklin, who both maintained that architecture was a foolish frippery, unnecessary for practical people. This past spring the federal government gave the mobiles its blessing by making them eligible for FHA financing.

The prospective owner of a mobile orders his house exactly as he does his car—selecting the color scheme, style, and furnishings that he prefers from the dealers' catalogues or floor samples. "You know it's all in good taste," a salesman told me, "because it comes complete from the factory. You don't have to worry about what goes with what. You decide what theme you like, and they do the rest." Picking one is relatively easy because the entire house depends upon a single decision. They are all strictly rectangular, and status can be derived only from minor differences in length and decoration. The accessory business, however, is booming. The mobile equivalent of a foxtail or wire wheels is a cover to hide the empty space between the chassis and the ground, a set of steps, or a telescoping patio. The buyer can go Early American with a bay-window kit, or attach a curly iron railing for an added Latin fillip.

The current coast-to-coast favorite is a sixty-foot Mediterranean model, de-

By ELAINE KENDALL

livered complete with mini-mission furniture, curtains patterned with vaguely Moorish scrolls, wrought-iron lighting fixtures, and a name like Granada or Toledo bolted to the exterior. "Everybody puts one of those out now," the dealers say, "and we can't keep them in stock." Sales of American Colonial models, equipped with cobbler's bench, maple rocker, and candle-holder floor lamps are lagging, and the popularity of the Scandinavian-modern interior, the leader in the early sixties, has fallen off sharply. "We never did much of a job with the Orientals," I was told. "People don't go for bamboo. Looks too spindly. They're a steal today." Five thousand dollars will, in fact, buy a sixty-five-foot luxury Dynasty, slightly dusty, but with its pagoda lamp shades still in their plastic covers, perfectly suitable for an intimate Chinese restaurant. "Just hose it off," the dealer told me solemnly, "and you're ready to go. Personally, I like Provincial."

In their current preference for Spanish furniture, mobile-home owners are typical of the population at large. In other, more important ways they are not. For one thing, they move less frequently than the American average, only once every 5.7 years as compared to once every 5.2 years for people who live in conventional houses. The inhabitants of "mobile homes" are the most stabile Americans of all. They have found a way of life that suits them, and they are firmly committed to it. Until the 1950's, trailers were a temporary expedient for married university students, construction workers, and soldiers' families stationed in remote bases. That is no longer the case. This year another three hundred thousand will convert to mobile homes, and many will never live in anything else. The more than 350 factories producing mobiles are working double shifts to keep up with the demand.

The United States now has about twenty-two thousand parks, and another fifteen hundred are opening each year, just as fast as landowners can persuade the adjoining townships that these instant towns are desirable additions to the existing community. That job is rarely easy, and anyone planning to turn his south forty into a mobile-home park is well advised to provide himself with proof that the project will be more lucrative to the area than, say, a research-and-development facility or a Coca-Cola bottling plant. To help the process along, the Trailer Coach Association produces booklets to demonstrate that mobile-home residents contribute impressive sums of money to the surrounding towns in the form of sales taxes and license fees; that all buyers are quiet and well-behaved churchgoers; and that they require almost nothing in the way of police and fire protection, public schools, or other costly municipal services. Nevertheless, town fathers and planning boards remain skeptical, and one of the few factors that have inhibited the business is the difficulty of finding a place to put the mobiles. More and more dealers are going into the park business themselves, often in partnership with local land-developers. If there is nowhere nearby that the customer can tie up his purchase, the sale is lost. It's important to be able to point to a vacant slot while the client is making up his mind between the Sevilla (two swivel TV chairs) and the Normandy (French provincial dishwasher and oval vanity basin).

Although one out of every four new American homes now rolls off a manufacturer's assembly line, they do not roll very far. The trip from factory to site is the longest journey that most mobile homes ever make, and in many cases, it is the only one. When the residents travel, they do so in a camper truck, in the family car, or by plane or bus. Their real house stays where it is, just like anyone else's. (The trailers seen along the road are now classified as "recreational vehicles," and the distinction is a crucial one. Owners of RV's usually live in ordinary houses, and they are not numbered among the six million rebels.) The most popular size for the stabile-mobile is 12 by 60 feet, and those have to be moved, at a cost of a dollar a mile, by professional haulers. The process is complicated when the "mobile" is one of the newest double-decker or double-width jobs. These are all built to stay put, and under no circumstances can they be hitched to the bumper and pulled away, like the half-grown trailers of the forties and fifties. Unfortunately, very few states have recognized this fact, and mobiles must still conform to laws that forbid anything wider than twelve feet to be trundled over the highways. The trade association is strenuously lobbying for the repeal of this anachronistic provision, a relic of the days when mobiles *moved*. After the law is changed, American housing may never be the same. "It's a pity," a representative of Parkway Homes said. "We could build them any width at all. There must be ten million people who just don't want to be held to that 12-foot room size. Give us another two feet, and we'll put Levitt out of business."

In the meantime, however, the mobile-home revolution remains one of America's best-kept secrets. Only the people who manufacture, sell, and live in them are fully aware of their existence. The mobile-home community continues to be an almost invisible subculture. If all American mobile-home owners were collected in one area, they'd constitute the fourth most populous city in the country. Scattered as they are, however, they seem to have eluded much notice. It is as though we had lost Chicago.

Groups as large as six million rarely lend themselves to tidy categorization, but mobile-home owners are a distinctive group—so similar in income, educational background, occupation, and general life-style that they are a sociologist's delight. One reason for this is economic. A full 90 per cent of all new mobiles are the same 60-by-12-foot size and cost the buyer between seven and nine thousand dollars. That's a

very limited range, and not one calculated to attract the sort of social or economic extremes that would distort an otherwise symmetrical profile. Few if any of the people who choose to live in mobiles have incomes below four thousand dollars a year; virtually none earn more than nine thousand. The average is $6,500—a thousand or so below the present American median. Parks, therefore, tend to be one-class communities, and the class is usually a notch below the more widely publicized "Middle American." The thousand-dollar difference is an important one; it works to preclude much educational or occupational diversity.

The parks seem to fall into two distinct categories, and each has its typical resident. "Service-oriented parks," in the industry's phrase, are designed for the elderly, the retired, or the semiretired. These communities, especially in Florida, Arizona, or California, usually contain some recreational facilities: a swimming pool, shuffleboard courts, perhaps even a clubhouse or a putting green. Rent for space goes up rapidly with the number of amenities. Sixty dollars a month will pay for five feet of clearance on either side of the unit, room in back for a couple of beach chairs, a barbeque, and perhaps a common horseshoe pitch; $180 a month buys palm trees, bougainvillaea, a gatehouse with uniformed guards, movies, ceramics classes, landscape services, and the other attractions of better retirement villages. Many of the more expensive parks in this class do not permit families with children to lease space and often set a qualifying age-limit for potential residents. Fifty is considered about right—hale enough so that the park does not have to supply medical care, sufficiently mature to obviate the necessity for schools in the immediate vicinity. (Townships tend to balk at schoolchildren, especially the offspring of non-taxpaying parents.) The ultimate in service parks is called a "resort park": parking spaces up to an eighth of an acre, perhaps a small lake for fishing in addition to the ubiquitous pool, even some essential shops. Of the twenty-two thousand mobile-home locations in the country perhaps twenty-five could qualify as "resorts" in any real sense. The rest may have a density of up to eighteen or twenty units per acre.

"Housing park" is the preferred term for those parks that have little if anything to offer the resident beyond a place to tie up his mobile. These are the sort most frequently found in the Northeast and Middle West, the kind that come most readily to mind when town planning-boards meet to discuss the difficult question of desirability. The housing parks tend to be older, cheaper, smaller, and usually on the

fringes of a city or town, in industrial or commercial areas. Space rental in these rarely exceeds sixty dollars a month. The majority of the residents are young working people employed in nearby factories and mills. Those who live in a housing park are there less often by choice than by dire necessity. The mobile is the only new housing presently available in America for under fifteen thousand dollars. For the family whose income hovers at about $6,500 a year, it is the single alternative to a cramped apartment or a decaying house in a "transitional" neighborhood. Although the literature turned out by the mobile-home industry insists that people in "all walks of life" are to be found in both types of parks, and that these communities contain a healthy mix of "professional families, businessmen, military personnel, skilled and semi-skilled workers and farmers," this sweeping statement is almost as misleading as the word "mobile" itself. If by professional people the association means doctors, lawyers, and clergymen, there are virtually none in any but the resort parks, and those are retired. There is usually a sprinkling of engineers and soldiers in any given area. They are there, however, not for life but for the duration of a specific tour of duty.

There are exceptions to these generalities, to be sure. Many different kinds of people may move in and out of mobile-home parks. But the overwhelming majority of parks are filled, almost exclusively, with "skilled and semi-skilled workers"—the hard core of what is now variously celebrated as Middle America, the "Silent Majority," or the Forgotten Man. The average age of a mobile-home resident, moreover, is forty—and he is at least a quarter of a century away from retirement, horseshoes, or the ability to afford the rent in a model resort-park.

Parks contain virtually no racial minorities. Though the mobile home is unquestionably the best shelter buy available for the least amount of money, it has not been a solution for the blacks, Mexicans, and Puerto Ricans jammed into the cities. So far, the mobile-home community has developed as an enclave for those firmly *opposed* to ethnic variety in their neighborhoods. Keeping it that way, moreover, is far easier than anywhere else. A park is "full" when a mobile home occupies each space. Since most parks adjoin dealers' showrooms and exhibition lots, nothing is simpler than displaying a model unit on a vacant space. If and when an unwelcome purchaser appears, he is simply told that the manager will get in touch with him as "soon as something opens up."

At first glance a service park in Florida or California may seem quite different from a housing park on New Jersey's Route 1, but within each category sameness is the rule. After a while even the distinctions between the two kinds of communities melt away, and

the whole enormous subculture seems to fit, quite comfortably, under a single security blanket. "At first, we thought we wanted redwood furniture on the breezeway," one Massachusetts resident in her early thirties told me. "But then we saw that everyone else had saran chairs. There's a rule here about chair sizes. It looks better when everything is alike. That's one way you can tell a good park. There are three units right on this road that are identical. They even have the same model color TV. And they're all from different states! That's what makes this place so congenial." On mild evenings one can stroll or drive through even the largest village and never miss a turn on the Ed Sullivan Show. "Out here we don't go much for those documentary programs," I heard. "We got away from all that when we sold the house. The one thing that they're good for is to convince me that we really made the right move."

The compact kitchens of mobile homes are a showplace of America's favorite brands of food, drink, and detergent, proof that television advertising works best. In general, the owners are great boosters of convenience foods, and it is a rare drainboard that does not hold its pair of thawing TV dinners. The older residents are tired of a lifetime of cooking. "You couldn't roast a whole turkey for two people," I was told. "We'd be eating leftovers for a month. And it's much more economical. No waste. My china dinner plates are all covered up, I use them so seldom." Because the younger women in the Eastern housing parks usually hold jobs, they also find these meals "a godsend" and a "blessing." "I'll tell you something you can do," one particularly friendly woman offered. "When you have company, you thaw them out ahead and take all the potatoes and put them in one casserole. Put the peas in a dish by themselves, and the meat on a platter. It's a little more trouble, but it's worth it."

Food and entertainment are not the only points of similarity from park to park, state to state. Clothing and hair styles, even in this age of eccentricity everywhere else, are standardized, conservative, and oddly out-of-date. The uniform of the day and evening for men in the retirement communities is a peaked cap and a string tie held by a metal doodad; Bermuda shorts if the weather permits, dark socks and regulation shoes. Younger female residents opt for bright narrow slacks, printed overshirts, fuzzy mohair sweaters. Colors may get duller as one goes up the chronological scale, but there does not seem to be much difference between a twenty-four-year-old bride in Maryland and a sixty-eight-year-old grandmother in California. The twenty-four-year-old's contemporaries in suburbs and cities are wearing their hair long and

straight, skipping lipstick, and trying in general to look like the "young individualists" in *Glamour* and *Mademoiselle,* but the women who live in mobile homes continue to spray their hair into contrived and crunchy masses. Hips and bosoms are firmly girdled and cantilevered. Make-up is used with a careful but lavish hand. In this whiskery age it is possible to drive through forty-seven parks without ever seeing a beard, a mustache, or even a set of sideburns on any male, young or old.

And then one realizes that—of course—there are no students in the parks. No blacks. No urbanites. Nobody in communications, advertising, show business, the arts, or the sciences. Nor are there any unattached women or bachelors until one gets to the retirement havens, which do have their share of elderly widows and widowers. "A young single woman just can't live here," I was told on several different occasions in widely separated parks. "It's impossible. I tried it for a while after I was divorced [or "widowed," or even, sadly, "after my husband went overseas"], but people who had been my friends just avoided me. They acted as if they were afraid I'd break up their homes. I sold the place and took an apartment. I never would have met anyone here. Then I married a truck driver, and here I am again, back in Lakeside."

The turbulent 1960's seem to have created the mobile-home bull market without touching the way of life inside in any sense. It could be 1950 in there, or even 1930. These are strangely anachronistic places. The names on the mailboxes are often the kind of solid, eminently pronounceable American names that you see carved on the war memorials of small towns: Forbes, Smith, Adams, Carpenter, Miller. There is not much evidence of the ethnic mix so apparent in the adjoining towns and cities. Parks near New York, Boston, Pittsburgh, or Miami are not microcosmic replicas of the larger population centers, with corresponding shares of Jewish, Irish, Italian, and black Americans. As you walk through these settlements and talk to the people, it is easy to visualize a simpler and far more homogeneous America, a country that is not only unpolarized but still unleavened by mass immigration from southern and eastern Europe. Nor is it precisely the same Middle America profiled by *Time* and *Newsweek* or appealed to by the President when he calls upon the "Silent Majority." This one seems more limited still, less various, composed of people who have inadvertently become a minority within the nation that once seemed to be all theirs. There are a great many flagpoles sunk into the concrete or driven into the small patches of grass in front of mobile

parks, a lot of bumper stickers saying "America, Love It or Leave It," plenty of barbeques; but no peace symbols, not many small cars, neither maxi nor mini skirts—not much of anything to indicate that this is 1970. The parks are strangely quiet. No one is playing rock music, not even after school.

Economy, of course, is a universal answer to the question of why people live in mobiles, but there are others. The milk-white character of these communities is attractive, and not just to relocated Southerners. "On my salary," a salesman said, "we couldn't really pick our neighborhood. We'd tie up everything we've got in a house, and then lose out when the area changed. I don't know when I'll be transferred, could be next month. This way, we're not taking any chances." "I like it because of the pool," his wife added, with a bit more candor. "We lived in Queens for a while and went out to the public beaches, but I just couldn't get used to it. You know. My husband travels a lot and I really feel safe here. It's the only place you *can* feel safe these days." And it is true that the parks are relatively secure and crime-free, a fact that is probably explainable in terms of the age of the inhabitants rather than the color, but there it is.

The longer a family stays in a mobile, the more insular its life becomes—"park oriented," in the sociologist's phrase. For a while, younger residents do seem to seek friends and activities outside the park, but eventually, the acquaintances move to a house and "sort of drift away." "At first I joined a church in New Brunswick," one young woman confided. "I sang in the choir and everything. But then people would ask me where I lived, and you should have seen them freeze up. 'You live in the *trailer* park?' They think we're all gypsies or something. I still go to the church once in a while, but I've never been asked to any of their houses, and no one from town has ever come out here, not even the minister."

Perhaps because they seem so unsure of their welcome in nearby suburban towns, even the youngest mobile-home owners tend to seek their amusement along the highways. "There's everything right on the road," I was told. "The bowling alley. Lots of restaurants. Movies. The best shopping centers. I don't ever go into town unless it's to the doctor." Special occasions like birthdays and anniversaries are celebrated with dinner at a motel rather than in a city restaurant. "We don't entertain much at home," one resident said. "Maybe a barbeque in the summer, but that's about it. I don't know anyone who has dinner parties. In a park like this, with everyone so close, you'd hurt people's feelings. Besides, there's not that much room."

Nevertheless, social patterns in the mobile-home parks seem determined as much by economic class as by space limitations. Few residents seem to have any experience of the cocktail and dinner-party rituals of the suburbs. "We're a lot more casual," or "too busy," is the usual explanation. Company for dinner generally means relatives, just as it does in blue-collar city neighborhoods. It is work, not fun. Even in 1970, husbands and wives continue to find their social lives among their own sex, and there's not much evidence that the so-called moral revolution has reached the parks. John Updike's fictional "post-pill paradise" is set somewhere else, where the lots are larger and husbands obligingly commute. "I'd like to see anyone try and get away with that here," one woman said. "I think people who live in mobiles have the best morals in America."

Forty per cent of American women now work at outside jobs, but the percentage among park residents is usually much higher, perhaps double the national average. It's relatively easy to take care of one of those minihouses, and in the communities that include a large number of retired people, finding baby sitters is simple. "I thought I would just work for a couple of years," the women say, "and then we'd get a house in town. But with this inflation, staying here is the only way we can have any extras. If we moved into a regular house, it would really be a sacrifice. Here we can stay ahead—and last year we even got to Mexico. I don't want to give up everything for a house. There's no point in it." "When I get home," a cross-country truck driver explained, "I don't want to be bothered mowing the grass and fixing things up. I want to relax. This place never needs painting, screens, storm windows, any of that stuff. I'm not a slave to it. When it wears out, I trade it in. If I want to go away, I just lock it up and forget it."

"Going away and forgetting it" is often offered as a factor in mobile-home living, but not many people actually seem to do it. "We have everything we want right here," residents say. "There's a pool. We just got a new color TV. Maybe next year we'll buy a camper and take a trip out West." In general, it is the pervasive contentment that is so striking. Mobile-home owners often seem to be the least restless—and most complacent—people in America today. "We haven't got the problems," they explain. "No drugs. No crime. No trouble with the race situation. Wouldn't you say we've got the right idea?"

An overwhelming proportion of the six million converts apparently agree. The only confusion seems to be "what we'll do when the children are in high school." More and more parks, in a determined attempt to "upgrade the area," are closing their gates to children. "My oldest is ten," a Connecticut resident said, "and she's started to feel left out. The others don't include her in anything they do after school, and there aren't many her age out here. That's the only thing that would make us move. You don't like to see your children missing everything." "From what I hear," the child's father said, "she's not missing anything *good*."

Few people in the parks seem to think that they're missing anything good. "Show me what I could get in

one of those New Jersey suburbs for eighty-five hundred dollars and fifty dollars a month. Here I've got four bedrooms, congenial neighbors, no trouble." "You pick a good park and stay there," another elderly resident told me. "And after a while, you learn the signs. See if the units have a cover like this around the base. When they just prop up the chassis with cinder blocks, it means that the people don't want to invest in the community. Look at the landscaping and breezeways. If everyone has a breezeway with chairs and a table, then you've got a congenial place. Look at the cars out front. You can tell a lot from the way people keep up their cars. You want peace and quiet, stay away from a park with a lot of tricycles and toys. And you've got to look at the units themselves. How many sixty-, seventy-footers? How many double-wides? You wouldn't want a place with a lot of *trailers*. That's a whole different class of people."

It seems to be impossible for conventional builders to compete with the mobiles. "All we could give them for the same money is a studio apartment," says Peter Ochs, who represents William Lyon and Company, one of the largest construction companies on the West Coast. "We're now looking for park sites everywhere. That's definitely where the future of building is." And architects reluctantly agree. Robert Hillier, whose designs won six national awards in 1969, admits it. "Public institutions like the government, universities, and churches will probably continue to use stone, brick, and wood for a while," he says. "But I've begun working with manufactured housing. That's a more accurate word than mobile." Mr. Hillier may be a superrealist, but any architect who ignores the trend is like an engineer who stubbornly insists upon the future of the dirigible. Paul Rudolph, who has been responsible for some of the most provocative buildings done within the past decade, recently volunteered to plan a mobile-home community for the New Haven Redevelopment Corporation. Rudolph's mobiles are covered with curved roof-sections, joined into clusters, and set among thoughtful plantings, but the total effect is hauntingly reminiscent of a stand of World War II Quonset huts.

The concept of manufactured housing literally begins where the mobile stops. The favored term is "systems building," a catchall phrase for factory-built components that can be produced by assembly-line techniques, then shipped to the site to be stacked, lined up, or dropped into place by supercrane or helicopter. Such systems are to older methods of prefabrication what the ready-to-wear dress is to a yard of fabric. European countries have been experimenting with various component systems for the past twenty years, but America is only now beginning to investigate them seriously. In the U.S.S.R. 80 per cent of postwar construction has been done with precast concrete units assembled to form apartments, factories, and schools. While these have been functional, they have not proved especially durable, spacious, or beautiful. The Russians have not been overconcerned about aesthetics, but more recent efforts in France, England, and Sweden do show that these systems can produce varied and even strikingly attractive structures in far less time than it takes to build by conventional methods. The factory-made components, however, must be used on a truly enormous scale before they begin to lower costs. The ten-millionth unit is economical; the first ten thousand can be prohibitively expensive. The factories must be built, transportation facilities devised, building codes altered, and craft unions reassured. Most important of all, the general population must be convinced that a standard housing-module offers all the leeway that anyone could want. The six million who now live in mobile homes may turn out to be the avant-garde.

Moshe Safdie's Habitat project in Montreal is perhaps the best-known example of how factory-built units can be used imaginatively, but although Habitat is exciting and provocative, each apartment cost $154,000 to complete. That's hardly a figure to gladden the hearts of those concerned with housing the poor—or even the middle classes. Habitat, of course, was a prototype, and Safdie now maintains

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I certify that the statements made by me above are correct and complete. Paul Gottlieb, Publisher

that he can build comparable projects for $17,000 per unit. One is now underway in Puerto Rico. "The design, production, research and development of construction must be integrated," Safdie says, "and since the present structure of our economy makes this practically impossible by natural evolution, it becomes essential that government take the leadership required to bring about such a change."

The Department of Housing and Urban Development (HUD), headed by George Romney, has organized "Operation Breakthrough" in order to interest every segment of American industry in mass-produced housing. Some very talented—and realistic—architects are today devoting themselves to finding a way out of the box. Eduardo Lozano, a Harvard-educated Argentinian now teaching at Princeton, is one. "Concrete is heavy, bulky, and it aggravates the debris explosion," he says. "Metal, however, can recirculate ad infinitum, although so far we have neglected the wonderful possibilities of re-employing our scrap. Those cars you see abandoned—they could become wonderful buildings. An architect must concern himself with the total environment." It's an enchanting vision—100 million derelict automobiles reincarnated as classrooms; children happily learning the new math in Dad's old Mustang. Because Lozano is also convinced that the preformed cube is restrictive, his components consist of one, two, three, four, five, or six related but separable surfaces. These offer several welcome and important advantages over the fully enclosed box. A Lozano room need not be 12 by 8 feet, but can be any multiple of these dimensions. A gymnasium is therefore as easy to assemble as a bedroom. Because the sections can be stacked and nested, transportation problems are minimized and costs lowered. Professor Lozano programs his components into a computer, and the potential variety, while not quite infinite, comes as close as any reasonable person could wish. By combining the system with traditional on-site methods, roofs can take any form desired. The sections themselves can be inserted into a steel framework for a structurally sound high-rise building or be made integrally weight-bearing for town houses or garden apartments.

In Mexico Juan Jose Diaz Infante has perfected an all-plastic system that can produce a minimal house for four hundred dollars, a deluxe model of several units for two thousand dollars. Diaz Infante's design is a total departure from the squares and rectangles used by others. His modules are tubular, and their shape is curiously reminiscent of the old American covered wagon. (Those were manufactured houses, and mobile at that.) Originally intended as inexpensive shelter for Mexican sugar workers, the Diaz Infante invention is so attractive that several have been ordered for use as beach houses. Reproduced in the United States and fully furnished, the most lavish Diaz Infante model would cost about seven thousand dollars, no more than the dreariest mobile being ground out here. The peons are ready —are we?

The newest Simon and Garfunkel album has a lovely valedictory to architecture in America:

> So long Frank Lloyd Wright.
> I can't believe your song is gone so soon,
> I barely learned the tune
> So soon, so soon.*

Driving from one mobile-home park to another in the spring of 1970, I thought of it often. The timing was perfect.

Elaine Kendall lives with her husband and two children in a nonmobile home in Princeton, New Jersey. This article is adapted from her book The Happy Mediocrity, *which will be published by G. P. Putnam's later this year.*

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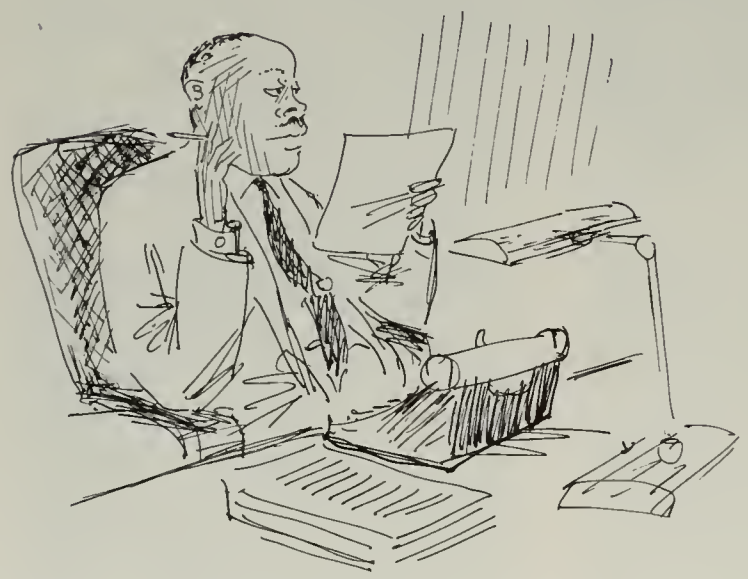
Authors at Work

Drawings by WILLIAM HAMILTON

"He ripped off her filmy negligee and growled, 'Remember me, sexy?'"



"'Rebecca Colt Brevard!' said the silhouetted figure of the horseman. 'Lieutenant Randolph Snowden!' she gasped, blushing crimson in the light of her lantern, 'whatever are you doing back in Virginia?'"

"What Heidegger called <u>being</u> and <u>appearance</u> in <u>Existence and Being,</u> and I have called quantitative and inductive procedure, coincide in the Greek <u>ontōs methexis.</u>"

"Everyone at the bank thought 'What a nice, innocuous, conservative man Mr. Williams is.'"

"Of course, the successful industrialist must be blessed with a certain touch of genius."

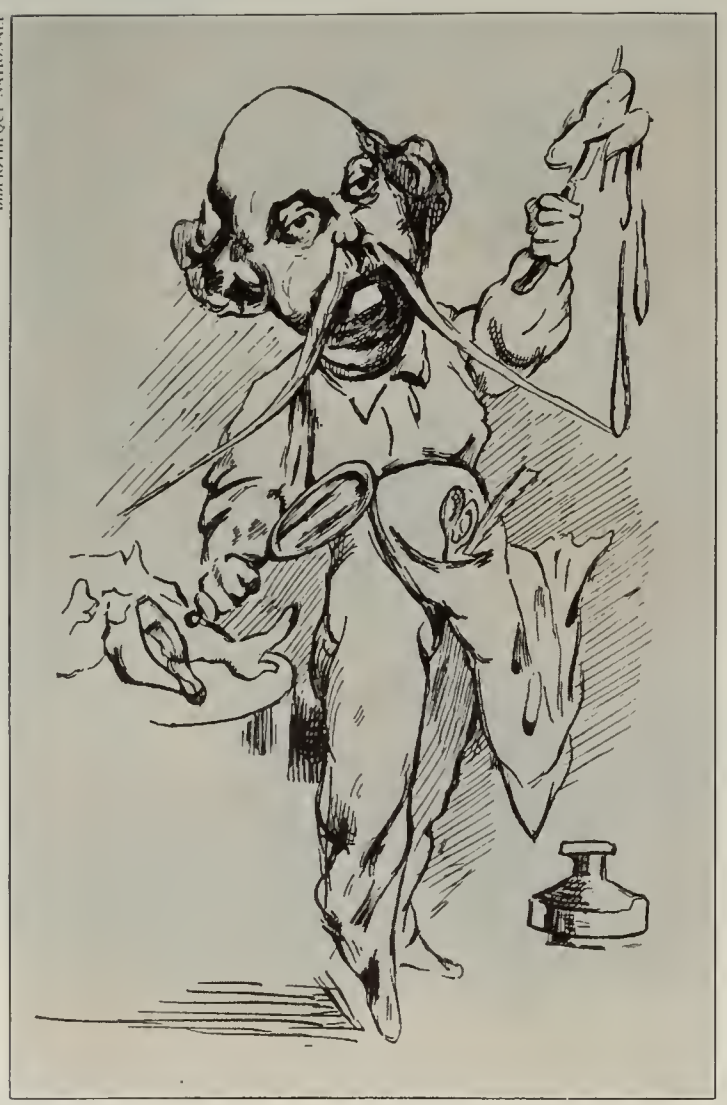
"His lineament, the grace of his carriage, his grooming and demeanor all announced, even through his rags, that he was an aristocrat."

"For the moment, it appeared Ralph was the winner. However, almost three years later, I came into a position which was to change his victory into ruin."

"Second day, breakfast: 1 piece burnt toast (no butter). Lunch: 3 soda crackers, 1 apple..."

"'My, you move gracefully and agilely for a heavier man!' she purred softly."

FLAUBERT'S MADAME BOVARY



Flaubert wrote "with a scalpel," critics have said. Here, he dissects Madame Bovary in a caricature that appeared in 1869.

In his masterpiece Gustave Flaubert
invented modern realistic fiction: a simple story
told in a simple style—
which led straight to a trial for obscenity

By SHIRLEY TOMKIEVICZ

Emma is a frail and pretty girl, imaginative but not especially bright, convent-educated, if female schooling in nineteenth-century France can be termed an education, and full of intense yearning for romantic episodes. The daughter of a prosperous farmer, she marries Charles Bovary, a good-natured, inept, well-meaning country doctor—not really a doctor but rather a licensed health officer. They live first in Tostes, then in Yonville, two more or less identical villages in Normandy. They have a daughter; Emma pays her little attention. Driven by boredom and despair, Emma embarks on a love affair with Rodolphe, a local squire, who jilts her just as they are on the point, so Emma thinks, of eloping to some exotic land together. Later she takes up with a handsome law student in Rouen. Charles knows nothing about all this, for it hardly occurs to him that Emma is unhappy, let alone unfaithful, nor does he know that she is running up debts. When the creditor threatens foreclosure on her household goods, Emma begs her law student and even Rodolphe for money, but they will do nothing. She swallows arsenic and dies in great pain. Some months later, Charles comes across a packet of letters that reveal what Emma had been up to. The grief kills him: one day he simply sits down in the garden and dies. The little daughter is sent away to earn her living in a textile mill.

Unlikely though it may seem, this is the plot of Flaubert's masterpiece, *Madame Bovary*, a novel invariably counted among the world's best and regarded by the French as one of the proud achievements of their language. Yet it is not illuminated by great events, and it is set in the bleak obscurity of villages. Although the heroine comes to a dramatic and very bad end, her story definitely lacks the tragic element. She is no princess in disguise: Flaubert deliberately fails to endow Emma with any of the monumental qualities that novelists usually like to see in their protagonists. The central

character of the traditional novel is always more intelligent, or more evil, or in some way more remarkable than his fellow man. Emma's type of heroine, or antiheroine, as we might say, is by now familiar to us; yet it is not hard to imagine what originality she had in her own day, and what prodigies of imagination it cost Flaubert to create her.

Madame Bovary appeared in 1856, first as a magazine serial and the following year as a book. By this time Balzac and Stendhal, two other great French realists, were dead, as were most of the first generation of French romanticists. Victor Hugo, the century's spokesman for poetic and political liberty, had been forced into exile in 1851, when Napoleon III declared himself emperor. The tumultuous political scene became quiet, or at any rate was held firmly in check, and French letters fell on hard times. A heyday of creation had seemingly passed; now the emperor's thought police kept a dismally efficient watch on everything put into print.

The writers of the 1850's had no choice but to steer away from the subject of politics. This was no trouble for Flaubert, who in any case cared little for political action or writing. He once remarked bitterly that 1789 had destroyed the aristocracy, 1848 the bourgeoisie, and 1851 the people. Although no admirer of kings, he mistrusted democracy; and despite his thoroughly Marxian contempt for the bourgeoisie, he thought socialists were all dictators at heart. Yet on the literary plane, if not the governmental one, he was nevertheless a revolutionary. *Madame Bovary* was his revolution. In all fiction there had never been a character like Emma, or Charles, or even Homais, the prating druggist who lives next door to the Bovarys and serves as the symbolic antagonist to Emma's dreamy romanticism. (Whatever nourishes Homais kills Emma: she ends up dead; he wins the Legion of Honor.) No one before Flaubert had ever written seriously about the heartaches and errors of a silly provincial housewife; the very idea of trying such a thing filled him with apprehension, and rightly so.

Having no model to look to, except possibly Balzac, whose hortatory style he found distasteful, Flaubert was obliged to invent his own style. This has been variously described as "writing with a scalpel" and as "objective seriousness." One of its essentials is its disciplined objectivity: Flaubert never tells you what you ought to think of the events he sets before you, nor even what he himself thinks. *Madame Bovary* is quite devoid of that sense of propriety, or partisanship for Good Sense, that is the foundation stone of nineteenth-century fiction. Flaubert sets down reality as precisely as he can, and that is as much as we get from him.

Any randomly selected passage from *Bovary* will show what he wanted to achieve and the economy with which he went about his task. Flaubert devotes small space to describing Emma's looks, but occasionally he does pause, like someone momentarily captivated by a passer-by on the street, to gaze at her, as in the following scene early in the book. Emma still lives with her father. Charles, to whom she will shortly become engaged, has come to call, and the pair are saying good-bye at the front door. It is an early spring day; snow is melting off the roof.

"She always accompanied him to the top doorstep. Whenever he had to wait for his horse to be brought around, she would remain there. They had bid each other good-bye and had ceased to speak. A fresh breeze overtook them, playing among the fine curls at the nape of her neck, and swirling her apron strings around her waist like streamers. . . . She went back indoors to fetch her parasol; she opened it. The sunlight filtered through the dove-gray silk, casting quick reflections across her white skin. . . ."

We are not told the color of Emma's hair, nor whether she is pretty, nor what she thinks of Charles, nor why they have ceased to speak. But we do know that the sight of Emma under her gray silk parasol has probably dumfounded Charles with admiration. She, however, is merely flirting. Few novelists of the time, having created such an apparition, could, or would, have resisted exclaiming, "How lovely she was! How Charles adored her!" Balzac or Dickens would then have commented on young love, spring thaws, and sunny days. Thackeray might have pointed out how fortunate it was that Charles had no notion of the misery Emma would bring him. But Flaubert tells us only what the most detached observer might see. A woman emerges from a house, she holds a parasol, the light flickers across her face—sunshine through gray silk. We see the sunlight, the fluttering apron strings, the face: we know the rest of it without being told. It is the same technique, and the same kind of light, Monet would discover some twenty years hence.

The late German critic Erich Auerbach once wrote a brilliant essay on French literary realism in which he observed that the whole of Flaubert's artistic practice rests "upon this conviction—that is, upon a profound faith in the truth of language responsibly, candidly, and carefully employed." As Auerbach points out, this is, of course, an ancient and honorable French tradition, the credo of Racine and of Voltaire. Flaubert's stroke of insight was to put the tradition to work with entirely new raw material. His faith in the truth of language, responsibly employed and focused upon everyday, unexceptional realities, is a very modern faith. It is shared by the documentary film makers, among others. Indeed, most of us believe that if we can manage to see what is happening, we shall therein and thereby understand what it means. Don't give us sermons; we want only the facts.

When Flaubert began to write *Madame Bovary*, he was, at the age of thirty, the author of several unpublished works and already a fanatic technician. He meant to settle for nothing less than

a perfect novel, beyond criticism. This was the beginning of five years of incredible, grinding drudgery. He would start to write each day after lunch and would not stop, except briefly for dinner, until the early hours of the morning. Sometimes the sunrise would find him still at his writing table. The light burning in his window each night became a beacon for rivermen on the Seine, which flowed past his pleasant house in the village of Croisset. He was a lifelong bachelor; his household companions were his widowed mother and his orphan niece. The child thought "Bovary" was a synonym for "work." Before he sat down at his desk, Flaubert always costumed himself in a long white robe, and during the afternoon he would sometimes pace up and down his balcony reading some passage aloud—in a reverberating bellow—to see whether each sentence was, in his word, "ripe." The neighbors regarded him as a lunatic, and in a way they were right.

Flaubert was born in 1821 in Rouen, the son of a prominent physician who lodged his family right in the city hospital. Young Gustave enjoyed hiding in his father's dissecting theatre to look at the corpses. His ambitions, however, were literary rather than medical. He began to write stories while still a boy and at the age of sixteen actually published two pieces in a local magazine—his sole public success until *Madame Bovary* appeared twenty years later. He hated school and could not keep his mind on his lessons, but on his own he read Shakespeare (in translation) and the avant-garde writers of the day, Chateaubriand and Hugo. He memorized long passages from *René*, Chateaubriand's tale of alienated youth, and he came to think of himself as a disillusioned man. He grew ostentatiously melancholy. He slept with a dagger under his pillow in case some adventure should befall him. In short, like many a promising child of his day, he was swept away by romanticism.

Somehow, in spite of his hatred of all things middle class, he emerged from school qualified for the university—but to study what? One dilemma was solved when he drew a lucky number in the draft lottery, which forever exempted him from military service. Feeling that he had to do something toward a career, he enrolled in law school in Paris early in 1842 but ignominiously failed his exams the following summer, having devoted the intervening months to reading poetry instead of law, to writing stories of his own, and to making the rounds of the brothels. He disliked his cramped student quarters and could never keep within his allowance. He would spend all his money on food, drink, tobacco, and women, and then, in eternal student fashion, have to beg his father for a loan. During this period he made a friend who was to be of some importance to him later, the Baron Maxime Du Camp. The two young men shared whatever debauches they could afford and tried to get into the chic Bohemian salons. Around Christmas time in 1843 Flaubert failed his law exams again and went home for the holidays.

Shortly thereafter occurred the event that was forever to remove Gustave from his dreary law studies, from the necessity of having to make a career for himself, and from all chance of leading a normal life. In January, 1844, journeying toward Deauville on an errand for his father, Flaubert collapsed to the floor of the carriage in a terrifying fit. He felt as if he were afire, he frothed at the mouth, he knew he was dying, and he lost consciousness in an onrush of hallucinations. When he recovered sufficiently to be taken home, the father found himself unable to diagnose the son's trouble. At length he decided to treat it as epilepsy and prescribed the standard remedies of the day: bloodletting, hot baths, and a chaste and abstemious way of life.

Until recently no one understood the nature of Flaubert's affliction, but Professor Benjamin F. Bart enlisted medical opinion and in his biography of 1967 diagnosed the illness as a common form of adult epilepsy that went unrecognized in the nineteenth century. In Flaubert's case the seizures were heralded by premonitions and accompanied by hallucinations and acute pain. One interesting effect of the disease, according to an article that Maxime Du Camp published many years after its onset, was that it deprived Flaubert of his facility with words. Before his illness his stories had come easily and fluently to paper; from now on, the act of writing was to be tormentingly slow. But most important, it freed Flaubert from the ordinary cares of life, just as surely as his luck in the draft lottery had freed him from military service. Deciding that he must never marry or father children, he set himself up at Croisset. On his father's death, less than two years later, the family fortune fell to him and his mother. The hated law books cluttered his desk no longer; he had only himself to please, and he settled quickly into the life of a recluse.

As time passed, the attacks became less frequent and less virulent, and Flaubert was able to travel when he chose to and to forget about chastity and abstemiousness. Much of his twenties was devoted to writing *The Temptation of Saint Anthony*, a grotesquerie about the woes of the famous anchorite. While engaged on this tale, Flaubert occasionally visited Paris, where he formed a liaison with Louise Colet, an attractive poetess and bluestocking of the day. They never thought of living together—Flaubert would have been appalled by the idea—but Louise seems genuinely to have loved him. They met infrequently, but he was an expert lover and an exquisite letter writer—qualities she valued in a man. Late in 1849 Gustave and Maxime departed for a two-year journey through Egypt, the Middle East, and Greece. It was a grand adventure for them, by far the most delectable experience of their lives—a kind of extended sightseeing tour and itinerant orgy. On his return to France Flaubert began work on *Madame Bovary*, and resumed his love

affair with Louise. Before he finished the book, however, he and Louise broke off permanently. For though he had begun to write as a young man, he was middle-aged, even old, at least psychologically, by the time he accomplished his task. He went on to produce *Salammbô,* a final version of *Saint Anthony, The Sentimental Education, Three Tales,* but from the time he created Emma, at thirty-five, until his death in 1880, aged fifty-nine, his biography is little more than a chronicle of the hours spent at his writing desk.

Even so, Flaubert probably thought Emma had been worth it. In later years he is said to have been given to remarking, cryptically, *"Madame Bovary, c'est moi."* This has been interpreted to mean that Emma represented the romantic foolishness of Flaubert's boyhood, or that he identified himself with her as a female and through her was expressing some sexual maladjustment —or at any rate his own sexuality. For a woman of her day, Emma is, indeed, a lusty creature, who takes great pleasure in love-making (modern readers find this commendable, but her contemporaries were shocked). She has even been called a Don Juan figure—rather an extravagant appraisal of a lady with only two lovers.

The novel is filled with tours de force, over which the author toiled until his fingers must nearly have bled. One of these is the chapter describing Emma's education at the Ursuline convent in Rouen. It might almost be a parody of Flaubert's own schooling. Emma's *belle education,* consisting of a bit of geography, a bit of literature, a bit of music, and a bit of history, served mainly to fuel her daydreams. From her history lessons all she learns are the names of Louis XIV's mistresses. Out of the religious instruction given by the nuns she derives neither faith nor theology, but rather, a love of music and candles and a droopy image of Christ as the heavenly spouse. She reads threepenny romances day and night; she pictures herself as the lady of some

BULLOZ

Flaubert's love, Louise Colet

lonely castle, longing for her knight to appear. It is all laughable, yet one cannot quite laugh. However silly Emma's fantasies become, they are not quite so shoddy as the reality she is trying to escape from. The girl who asks her father to arrange a midnight wedding by torchlight for herself and Charles is instead forced to sit through more than sixteen gluttonous hours of nuptial feasting and joking. And the bride who would like to go off on a wedding trip in an elegant carriage is instead taken directly to the dreary little house at Tostes where she will live.

Nevertheless, Emma tries to be a good wife. Her efforts to add some grace to her marriage earn her nothing but the enmity of her mother-in-law. As for Charles, it is all the same to him whether the dinner table is laid with oilcloth or linen, or whether Emma even bothers to comb her hair. Whatever she does is invariably charming to him. Emma cannot understand why things have turned out this way: "Before she was married, she had thought herself in love; but since the happiness which should have resulted from that love had never materialized, she surely must have been mistaken. And Emma tried to imagine what people really meant in life by such words as *felicity, passion,* and *intoxication,* words which were so very beautiful in books."

Emma's frustration no doubt reflects her creator's: by the time Flaubert wrote Emma's poisoning scene, he had become so closely identified with her that the arsenic rose up in his own throat and made him violently ill. But many a novelist has suffered over the death of his characters. *Madame Bovary* is still read and praised not for its numerous biographical clues but for its deadly portraits of human society.

Perhaps the most pointed comment on the *condition humaine* is made in the virtuoso passage about the country fair —the *"comices agricoles"*—at Yonville, where Charles and Emma settle down after Tostes becomes unendurable to her. The *"comices"* is one of those masterful scenes, like the Bennett sisters at the ball in *Pride and Prejudice,* or Fabrice on the battlefield at Waterloo in *The Charterhouse of Parma,* that make one thankful for having been taught to read. Flaubert composed the passage like an opera, scoring it for orchestra, chorus, and solo voices; into it he poured all his cynicism and his strength.

The citizens of Yonville do not regard this fair as a day's entertainment, but as a solemn event, an exposition in the name of progress and scientific achievement. The town is festooned with flags and flowers. From the columns of the town hall flutter pennants bearing devices: To Commerce, To Agriculture, To Industry, To the Fine Arts. Officialdom for miles around puts on its uniforms and medals; the peasantry has brushed its best clothes and its prize cows. A tent has been erected for the various exhibits—animal, vegetable, and mineral—and a platform has been built for the speakers and award givers. A national guard unit and some firemen are marching to and fro as people begin to fill up the square. Their commandant (the local tax collector on less momentous occasions) wears a collar so high and stiff, and carries himself so like a ramrod, that the only living part of him appears to be his legs, which lift themselves in a smart cadence.

Homais, the druggist, is prominent in the crowd; he regards himself as the regional authority on chemistry, for he

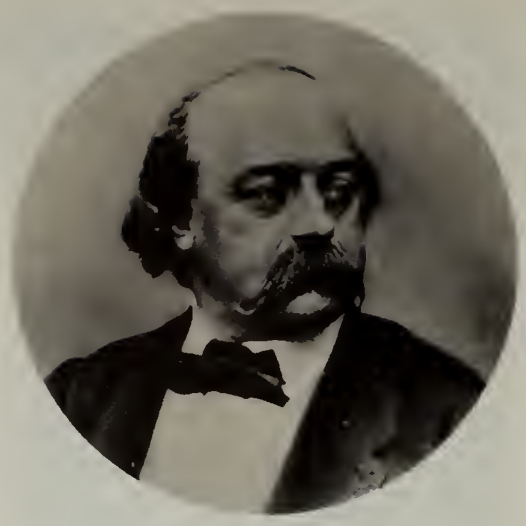
has recently published a learned essay on "Cider, its Manufacture and its Effects, Followed by Some New Reflections on this Subject." He is deep in conversation with the innkeeper. "Would to God that our farmers might be chemists as well, or that at least they might listen more attentively to the counsels of science!" Homais soon catches sight of his attractive neighbor, Madame Bovary, who is strolling through the crowd with Rodolphe. (Up to this point Emma has been faithful to her husband, chiefly for lack of opportunity to do otherwise. Rodolphe means to provide her with the opportunity. "That girl is panting for love," he says to himself, "like a fish on the kitchen table panting for water.")

The crowd assembles; the dignitaries mount their platform. At last the grandest of them all arrives, His Honor the District Judge. Everybody is duly impressed as he alights from a carriage that clatters into town behind two skinny horses, staggering under the coachman's whip. The peasants crowd around the dais; the ladies and gentlemen withdraw to the rear. Rodolphe has escorted Emma to an upstairs room in the town hall; they install themselves at a window to watch the proceedings. Rodolphe stays in the shadow, because, he tells her, "I can be seen from below . . . and I have a very bad reputation."

The Judge begins his speech by observing that Commerce and the Arts are flourishing throughout the land. "Good farmers and laborers! Peaceful pioneers in the work of civilization! Men of progress and of morality! How clearly you have seen that political upheavals rival any disaster nature can create!"

Rodolphe's voice has begun singing an insistent counterpoint to this rhetoric. He has been desperate, he tells Emma, has given up all hope of finding love. Now happiness has appeared, in the person of Madame Bovary. This is it, life has begun.

The Judge plows relentlessly onward, from peace and prosperity to



Flaubert, photographed by Nadar

patriotism and public spiritedness, to duty and respect for the law.

"Always duty," Rodolphe groans. "I'm sick of the very word. Look at all those old blitherers in flannel shirts, those bigots in wooden shoes, always running off at the mouth about duty. By God, *my* duty is to . . . adore beautiful things, and not to give in to every silly convention of society."

Now the Judge is praising the peasants and their splendid animals. "Who," he demands, "has not often contemplated the importance of the modest hen, that ornament of our backyards, who provides us with feathers for our beds and meat for our table, not to mention eggs?" Rodolphe, about to reach new heights in *his* speech, is telling Emma she is meant for him, that their souls are already as one. Emma is suddenly overwhelmed, not by his words, but by the fragrance of his hair pomade.

"Keep up the good work, persevere!" shouts the Judge. "Devote yourselves to the improvement of the soil, to better pastures, to the development of the equine, bovine, and porcine species." Once he has finished, the awarding of prizes begins. Best farm, best manure, best pig—it is a ludicrous tuba accompaniment to Rodolphe's baritone. Best pasture, best drainage, and finally, most faithful domestic service. When this category is announced, a thin and terrified old woman is led to the platform; in recognition of her fifty-four years of servitude she is presented with a silver medal. Realizing that the trinket is hers to dispose of, her face brightens. "I'll give it to the priest so he can say some masses for me."

"What a fanatic," grumbles Homais, the enlightened. He is already making notes for the article he means to write about the fair. "How proud they all were with their humble medals, how they must have wept with happiness, later, at home in their simple cottages. . . ." The ceremonies are over.

It is a marvelous scene—a multilayered little hell on earth. The peasants at the foot of the dais are not much better, or better off, than the animals they have brought to the fair. They stand together in the mud and hear themselves praised, like the noble hen, for offering their feathers and flesh to their betters. The villagers stand to the rear—the "betters" to whom the flesh and feathers are offered—and are in their turn awed by the politicians, who harangue them. Homais, of course, is awed by nothing, believing himself to be the embodiment of modern knowledge. The Judge regards himself as the spokesman for God's will on earth, and the emperor's. And above this collection of benighted souls, blitherers, and bigots stand Rodolphe and Emma. Rodolphe is a conniver, determined to seduce his quarry by whatever nonsense he has to resort to. Emma, bored by the spectacle below, is overpowered not by her suitor's well-oiled words but instead, like the leading lady in some television commercial, by the scent of oil in his hair. It might be comic if it were not all so completely unbearable.

Such were the ironies of life in the 1850's that the first distinction bestowed upon the author of *Madame Bovary* was a summons to appear in court. Flaubert had for years counted on Maxime Du Camp's promise to publish the book, if ever it were finished, in the *Revue de Paris*, the successful literary magazine he was now in charge of. Over the years, their friendship had cooled; but Du Camp kept his promise, and two thousand francs were sent to Flaubert upon receipt of the manu-

ARCHIVES PHOTOGRAPHIQUES

script. The delighted author expected to see the first installment in the July number of the *Revue*. But after weeks of silence a letter arrived from Maxime: the book was much too long. Why not cut the country-fair scene, which in any case badly needed rewriting? Furthermore, the editors of the *Revue* were not entirely happy with the treatment of the adultery theme. As Flaubert must surely know, the *Revue* was under the censors' gun, and what was the point of tempting them to shoot? Du Camp generously offered to save Flaubert the trouble of editing the text—he knew a good editor who was in need of work.

The spirit in which Flaubert received these instructive comments need hardly be described. He had never been so enraged, and he didn't mind saying so. On October 1, 1856, after much wrathful correspondence, *Madame Bovary* appeared in a first installment. Public reaction was generally favorable, but Du Camp was worried less about the public than he was about the police. He bowdlerized as little as he dared, but the last section of the novel contains a love scene that completely unnerved him. Emma has gone to Rouen, where she meets Léon, the law student who becomes her second infidelity. This is to be their last meeting, for she means to give him a letter that will end the affair before it starts. They meet in the cathedral, take a tour, find each other irresistible. Léon cannot take her home to his student lodgings, so he hails a hackney coach, unceremoniously hands Emma into it, and pulls down the blinds. Off it goes; we follow it around Rouen all afternoon. The only sound from the interior is Léon's angry shout each time the weary coachman tries to stop. The only bare flesh in the entire passage is Emma's hand, emerging briefly from a window to scatter the fragments of her letter. It is the first, and the wittiest, description ever written of passion in the back seat. But for all its lack of unbuttoning, groping, tooth marks, and moans, it *is* a scene of passion. Du Camp cut it. Flaubert retaliated by publishing a disclaimer. The whole entertaining fracas was brought to a halt by the arrival of the process servers. Flaubert and his editors were accused of corrupting public morals. The charge carried a prison sentence.

The trial took place in January, 1857, and the speeches of the prosecution and the defense are still extant and still make good reading. The prosecutor claimed that the book exalted adultery, vilified marriage, insulted religion, and was generally obscene. The defense countered by arguing that Emma's sins brought her no happiness, and on the contrary, were eventually punished by an agonizing death. Who would wish to follow Emma's example, he asked, after reading these grisly details?

Flaubert and Du Camp were acquitted, though the *Revue* was soon suppressed on another pretext. *Madame Bovary* appeared in book form and was, of course, a great financial success for the publisher—Flaubert had sold his rights for a small fee. The trial had frightened him badly, and he was disgusted that people would buy his book for its supposedly obscene passages. The critical reaction that most gratified him was a review by Charles Baudelaire. By coincidence, Baudelaire's *Fleurs du Mal* also appeared in 1857 and also caused an obscenity trial; but the poet lacked Flaubert's luck and had to go to jail. Such was the discernment of the emperor's thought police that they managed within the brief span of a single year to select for their obloquy the two most distinguished French books of the decade, if not of the century.

Yesterday's dangerous book is often today's beloved classic. Modern audiences are not likely to find Flaubert obscene. Yet in one sense the prosecutor at the trial had a point: *Madame Bovary* is indeed subversive, even socially destructive, in the very way he contended it was. As any open-minded reader can see, it attacks marriage, organized religion, parochial and public schools, the medical and pharmaceutical professions, political orations, and human stupidity. It does not, however, exalt adultery. Emma grows as bored with her lovers as she had been with her husband. Flaubert's attorney was shrewd enough to construe the book as a morality play in which the heroine's sins are justly rewarded. But what led her to suicide was not sin; it was money. As W. Somerset Maugham pointed out in his essay on *Bovary*, "if Emma came to a bad end, it was not . . . because she had committed adultery but because she ran up bills she hadn't the money to pay . . . If she had had the notoriously thrifty instincts of the Norman peasant, there was no reason why she should not have gone from lover to lover without coming to harm."

Whatever Emma's crime, only the most blackhearted puritan could feel that she got what she deserved when she swallowed the arsenic. She is silly and fallible, but so are the institutions that shaped her and then hounded her down. Her worst mistake was having to live in a society that catered to Homais and his kind. He never cared to know what was meant by *felicity, passion,* and *intoxication;* Emma never found out, nor shall we, at least not in the pages of this novel.

Flaubert's attack on the social machine was not new—anger being the driving force behind much good fiction—but his style of perceiving and describing life was a great innovation. It was taken up, perfected, and put to use in a score of ways by the diverse school of writers who were his heirs. It is the modern prose style. Flaubert's perception of the world is ours. Had he not invented it, someone else would have, for it is characteristic of our mentality. What we usually regard as the best kind of writing and reporting is done in Flaubert's way. Every realist, from Zola to Proust to Virginia Woolf to Hemingway, A. J. Liebling, and Norman Mailer—whether or not he ever read a line the master wrote—owes part of his craft to a Frenchman who in 1851 donned a white robe and shut himself up to write a book.

Rimes de la Mère Oie

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The first Mother Goose was neither English nor American, but French. Some say she was Charlemagne's mother Berthe, also called Goosefoot. But Mother Goose rhymes *are Anglo-Saxon. So these French renditions thereof may, their author suggests, represent a payment on an old (if hardly pressing) cultural debt.*

Rimes de la Mère Oie *will be published next fall by Little, Brown, in an edition designed and illustrated by three artists from Push Pin Studios: Seymour Chwast, Milton Glaser, and Barry Zaid.*

HOMPTÉ-DOMPTÉ

Hompté-Dompté assis sur un mur,
Hompté-Dompté en tomba très dur.
Ni les chevaux ni les soldats du roi
N'ont pu recoller ce grand maladroit.

MARIE AVAIT UN PETIT AGNEAU

Marie avait un petit agneau,
  Sa toison blanche comme neige,
Et partout où Marie allait
  L'agneau faisait cortège.

Un jour il a suivi Marie
  Jusque dans son école;
De voir un agneau dans leur classe
  Les enfants trouvaient drôle.

Le maître a mis l'agneau dehors,
  Mais il n'est pas parti;
Il attendait tout patiemment
  La sortie de Marie.

Pourquoi aime-t-il Marie autant?
  Les enfants clament en choeur.
Parce que Marie aime bien l'agneau,
  Répond l'instituteur.

LA PETITE MADELON

La petite Madelon
  A perdu ses moutons,
Et ne sait plus où ils errent.
  Laisse-les, ma petite,
  Ils reviendront vite,
Traînant leurs queues derrière.

BÊ, BÊ, BREBIS NOIRE

Bê, bê, brebis noire,
  As-tu de la laine?
Oui, monsieur, oui, monsieur,
  Trois poches pleines:
Une pour mon maître,
  Une pour ma belle,
Et une pour le petit garçon
  Qui vit dans la ruelle.

UN CHANT DE SIX SOUS

Chante un chant de six sous,
  Une poche pleine de blé,
Deux douzaines de merles
  Cuits dans un pâté.

Quand on ouvre le pâté
  Les merles chantent d'une voix;
N'est-ce pas là une belle bouchée
  A mettre devant le roi?

Le roi est dans son bureau
  Comptant ses deniers;
La reine est dans le salon
  Mangeant du pain miellé.

La bonne est dans le jardin
  Rentrant le linge sec—
Un merle s'abat sur son nez
  Et vite s'envole avec!

L'ENFANT DE LUNDI EST BEAU COMME UN DIEU

L'enfant de lundi est beau comme un dieu,
L'enfant de mardi est tout gracieux,
L'enfant de mercredi a du chagrin,
L'enfant de jeudi doit faire long chemin,
L'enfant de vendredi a l'âme pure,
L'enfant de samedi travaille bien dur,
Mais l'enfant de dimanche, comme tout le
  monde sait,
Est gentil et joyeux et bon et gai.

LA FILLETTE À LA BOUCLETTE

Il y a une fillette
  Qui a une bouclette
Au front, juste entre les deux yeux.
  Quand elle est sage
  Elle est très, très sage,
Mais quand elle est méchante—mon Dieu!

GEORGIE-PORGIE

Georgie-Porgie, pouding-et-pâté,
Embrasse les filles et les fait pleurer;
Quand les gars viennent jouer là,
Georgie-Porgie vite s'en va.

BARRY ZAID

QUI A TUÉ ROUGE-GORGE?

Qui a tué Rouge-gorge?
  Moi, dit le Moineau,
  Avec ma flèche de bouleau
J'ai tué Rouge-gorge.

Qui l'a vu mourir?
  Moi, dit la Mouche,
  Avec mon oeil louche
Je l'ai vu mourir.

Qui a sauvé son sang?
  Moi, dit la Sole,
  Dans mon petit bol
J'ai sauvé son sang.

Qui coudra son linceul?
  Moi, dit la Scarabée,
  J'ai aiguille, fil, et dé;
Je coudrai son linceul.

Qui creusera sa tombe?
  Moi, dit la Chouette,
  Avec ma binette
Je creuserai sa tombe.

Qui lira l'office?
  Moi, dit le Corbeau,
  Dans mon livre, tantôt,
Je lirai l'office.

Qui sera le clerc?
  Moi, dit l'Alouette,
  S'il ne fait nuit complète
Je serai le clerc.

Qui portera la torche?
  Moi, dit le Linot,
  Je l'amène aussitôt;
Je porterai la torche.

Qui menera le deuil?
  Moi, dit la Tourterelle,
  Je l'aimais, soupire-t-elle;
Je menerai le deuil.

Qui portera le cercueil?
  Moi, dit le Milan,
  Si ce n'est la nuit durant
Je porterai le cercueil.

Qui tiendra les cordons?
  Nous, dit le Roitelet,
  Coq et poule, en effet,
Nous tiendrons les cordons.

Qui chantera un psaume?
  Moi, dit la Grive,
  Quand le moment arrive
Je chanterai un psaume.

Qui sait sonner le mieux?
  Moi, dit le Taureau,
  Je tire comme il faut;
Alors, Rouge-gorge, adieu.

Tous les oiseaux de l'air
  Ont poussé un grand cri
Quand a sonné le glas
  De Rouge-gorge, leur ami.

By ORMONDE DE KAY, JR.